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The Massachusetts Medical Society

SECTION OF PEDIATRICS

**Georgian Room, Hotel Statler,
Wednesday Morning, June 10, 1931, 8:45 O'Clock**

DR. JOSEPH GARLAND, Secretary, Boston, presiding in the absence of the Chairman.

SECRETARY GARLAND: The meeting will come to order. The Section seems to be very unfortunate in that two years in succession we are deprived of our officially elected chairman. Last year Dr. Chadwell was unable to go to Plymouth to conduct the meeting and this year I have a message from Dr. Allen of Holyoke that he is ill and will be unable to attend. Under the circumstances it might be fitting if we had a motion to send to Dr. Allen our regrets at his enforced absence.

On motion, it was voted to send a message of regrets to Dr. Allen.

SECRETARY GARLAND: I will appoint the nominating committee for next year now, so that it will have plenty of time to make its choice and report. I will appoint Dr. Howe as chairman, Dr. Young and Dr. Barron.

This year, as you know, being the sesquicentennial of the Society, each Section is having a paper of historical interest. For our Section no one, of course, seemed better suited for this office than Dr. Morse, who is certainly better acquainted with the history of pediatrics in Massachusetts than any other living man. Dr. Morse.

THE HISTORY OF PEDIATRICS IN MASSACHUSETTS*

BY JOHN LOVETT MORSE, M.D.†

IN looking up this subject I have found so much interesting material pertaining to it in so many different lines that it is very hard to know just what to select and what to cast aside. It may be well perhaps to take it up first from the point of view of the teaching of the subject in our medical schools.

THE TEACHING OF PEDIATRICS

In 1871 the course of study at the *Harvard Medical School* was radically changed. Dr. Francis Minot was assistant professor of the Theory and Practice of Medicine and clinical lecturer on the Diseases of Women and Children. This is the first time that the diseases of children are mentioned in the Harvard announcement. The instruction consisted in a few lectures on the eruptive fevers. Two years later Dr. Charles P. Putnam was lecturer on the Diseases of Children. He gave clinical lectures once a week during the second year at the Dispensary for Women and Children on Staniford Street. In 1874 Dr. Minot ceased to be lecturer and Dr. Putnam was the only instructor. Questions on the diseases of children appeared for the first time in Professor Ellis' examination paper in Clinical Medicine in 1875, when the three-year graded course was adopted. In the next year Dr. C. P. Putnam and Dr. J. P. Oliver were instructors in the Diseases of Children. They gave lectures and clinical instruction once a week during the third year. Teaching was given at the Boston Dispensary and students were assigned cases on the dispensary districts and reported on them to the class. Dr. Putnam retired in 1879 and Dr. Thomas Morgan Rotch became special clinical instructor. In that year he gave the first systematic course in Pediatrics, the title being "The Prognosis, Diagnosis and Treatment of Diseases of Children." The first examination on the diseases of children was given to the fourth class in June, 1881. Instruction was begun at the Children's Hospital in 1882. In 1885-1886 Dr. Rotch was the only instructor, his title being Instructor in the Diseases of Children. In 1888 he became assistant professor of the Diseases of Children and in 1893 full professor. It has been generally believed, not only in Boston, but also throughout the country, that, when in 1893 Dr. Rotch became full professor of the Diseases of Children, he occupied the first chair of Pediatrics in the United States.

This belief was evidently not well founded,

*Read before the Section of Pediatrics of the Massachusetts Medical Society at its Annual Meeting at Boston, June 10, 1931.

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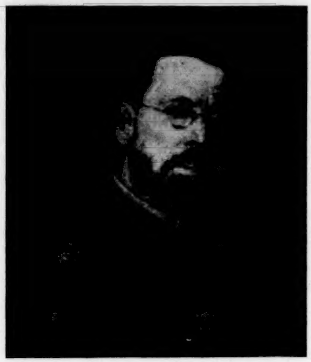
because, when the Boston University School of Medicine was established in 1873, Dr. Nathan A. Morse of Salem and Dr. Mercy B. Jackson of Boston were made full professors of the Diseases of Children. They gave instruction in the third year. The textbooks recommended were Hartmann, Tanner and Vogel. They taught at the Massachusetts Homeopathic Hospital, the Home for Little Wanderers, the House of the Angel Guardian, the College Dispensary and the Homeopathic Dispensary. It is noteworthy that the catalogue in 1874 states "This chair will give practical instruction in the diagnosis and



DR. CHARLES P. PUTNAM.

treatment of both acute and chronic diseases peculiar to children. Attention will also be devoted to the preparation of the food best adapted to the health of infants, when an artificial diet is required."

A few years later the department fell from grace and the subject was placed in the Department of Pathology and Therapeutics with Dr. Anna E. Fisher as lecturer on the Diseases of Children. An examination was given, however, in Paedology in 1883. Dr. James Hedenburg of Medford took Dr. Fisher's place as lecturer in 1887. The department was, however, not very active and little instruction was given. It languished under various heads until 1903 when Dr. J. Herbert Moore took charge as lecturer. He became professor in 1905. Since then the department has developed very rapidly and the opportunities for instruction have increased materially, the Clark Children's wards in the now Massachusetts Memorial Hospitals having been opened with 40 beds in 1907 and the Haynes Memorial Hospital for Contagious Diseases with 150 beds in 1908. Dr. Orville R. Chadwell was made professor in 1921. Since then the department has developed very rapidly, the number of instructors has increased very materially and the work is similar to that given at the Harvard Medical School and the Tufts Medical School, all being modern Class A schools.

The Department of Pediatrics at the Harvard Medical School grew by leaps and bounds after Dr. Rotch was made full professor. Dr. Rotch's policy was to control as many institutions as possible and to give instruction at all of them. Among the instructors during the next few years were Buckingham, Sherman, Wentworth, Morse, Ladd, Dunn, Talbot, Smith, Howard and Howell. In 1897 Dr. McCollom was appointed instructor in contagious diseases and a member of the Pediatric Department, thus settling the question at Harvard as to which department the eruptive diseases belonged. With the influx of aliens in 1921 the policy of the department changed. Up to this time it had occupied a unique position and had followed its own lines of development and instruction. No one had ever received a salary worthy of mention. All gave their best because of their love of teaching and their loyalty to Harvard. Their investigations were carried on at their own expense. Since then it has become indistinguishable from the departments in other medical schools. The policy has become one of concentration rather than of distribution, with a tremendous increase in the personnel and in the opportunities for study and investigation. Many young instructors receive larger salaries than the professors did in the past. The budget runs well into five figures.

The Tufts Medical School was founded in 1893. Dr. Harold Williams was professor of Pediatrics from 1894 to 1900. Dr. E. Channing Stowell was assistant professor and head of the department up to 1911 or 1912. During these years the instruction which was given was somewhat limited. Dr. W. R. P. Emerson followed Dr. Stowell as assistant professor, becoming full professor in 1914. Dr. Elmer E. Barron also became full professor in 1930. The Tufts Medical School has always suffered from a lack of clinical material. That at the Boston Dispensary has been used the most. Better days are in view for it, however, with the opening of the New England Medical Center this year.

To sum up—Massachusetts should be proud of the Pediatric Departments of its three medical schools and the lead which they have always taken in the instruction in this subject.

INFANT MORTALITY FROM DIARRHEAL DISEASES

One of the most interesting chapters in the development of pediatrics in Massachusetts is the story of the struggle to overcome the frightful mortality among babies from the diarrheal diseases during the summer months. In the beginning, while it was recognized that breast-fed babies suffered less than the artificially-fed, the chief factor in the etiology was supposed to be the high temperature in the summer. Even

after the importance of clean milk was beginning to be recognized, greater stress was laid on the temperature. It was considered all important to get babies away from the city to the country or the seashore, especially to the seashore. The mortality in infants' hospitals in the summer was so great that from 1883 on the Infants' Hospital had to close its wards from June 1 to October 1. In 1895 it was kept open again during the summer, but the mortality was so great that it was closed again in the summer until the Roteh Memorial building on Van Dyke Street was kept open in the summer of 1914. It is most interesting in this connection, however, that the Massachusetts Infant Asylum, which was established in 1867, was always able to keep open during the summer until it went out of existence in 1912. The apparent explanation is that as few babies as possible were kept in the hospital, the others being sent out to board in the country. Furthermore, the babies that were kept in the hospital were in part breast-fed. It is also interesting that the Waltham Baby Hospital, which was opened by Dr. Alfred Worcester in the summer of 1900, was also able to keep open during the summer without an excessive mortality, although it did not have wet nurses.

The first attempt, on any considerable scale, to get babies out of the city to the seashore during the summer was the *Seashore Home at Winthrop*. This was opened in 1886 or shortly before and was run by a board of lady managers of whom "Mrs. Judge Lowell" was the moving spirit. This home was independent of any of the hospitals. The patients, however, were sent from the Boston Dispensary. It was closed by the town in 1889 as a common nuisance. The following description of the work by Sister Amy may be of interest—The mothers came with their sick babies and usually brought 2 or 3 other children, whom they could not leave at home, with them. The mothers and babies were in one house and the children over two years old in another. There was no drainage and no water supply except from wells and pumps. The emptying of the cesspool 2 or 3 times a season was the cause of the town's complaint. The babies' bottles were washed by the mothers under the pump and then filled with cold water and placed on a table covered with enamel cloth. The nipples were kept in bicarbonate of soda solution in small mugs opposite. Three kinds of food were used—plain milk, Mellin's Food, or milk with a few drops of Murdock's Food in it. All the sick babies had brandy and water every 2, 4 or 6 hours. In 1887, however, Dr. Charles W. Townsend took over the medical service. Modified milk in a very mild form was prescribed and all the food was sterilized at 212° F. in an Arnold sterilizer.

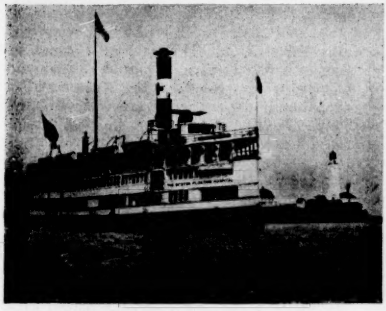
The *Children's Island Sanitarium* at Marblehead was started about 1890, or a little earlier, by Dr. H. C. Haven to provide a summer home for the babies brought to the West End Nursery. It was found, however, that babies did not do well there. The cause was supposed to be that the climate was too bracing. After 4 or 5 years, Dr. Joel E. Goldthwait took charge, and since then the patients have been almost entirely orthopedic.

In 1894 and 1895 Dr. Harold Ernst, who was then in charge of the Medical Out-Patient at the Massachusetts General Hospital during the summer, being impressed by the large number of sick babies, got permission from the City of Boston to use the old quarantine hospital on *Rainsford Island*. He equipped it, raised funds to carry on the work and had the Sisters of St. Margaret take charge of it. Dr. Roteh took it over during the next 3 years. He had some arrangement with the City of Boston by which it carried the babies back and forth, while the babies were taken care of by the nursing staff of the Infants' Hospital. It is sad to say, however, that a large proportion of the babies that went down in their mothers' arms came back in pine boxes. The City of Boston then needed the hospital for other purposes and, as the Floating Hospital had then begun to function, the summer hospital there was given up.

The *Boston Floating Hospital* was established primarily to meet this supposed need to get babies away from the city and to give them sea air. The Reverend Rufus P. Tobey originated the plan. Among those most interested were the Reverend Edward Everett Hale and Dr. Francis H. Brown. The first trip was made July 25, 1894. Five trips were made during the summer and 697 new cases taken. The barge Clifford, which was used for excursion purposes at other times, was towed out into and about the harbor. Everything had to be put on in the morning and taken off on the return. Mothers, sick babies and well children were all taken. The first doctors were James B. Thornton and C. D. Underhill. I can testify from experience that confusion worst confounded does not express the conditions on the barge during one of these trips.

The barge was purchased in 1895, remodeled and refitted. It was still run as a day boat. The next year permanent patients, as well as day patients, were taken. A training school for graduate nurses was established at that time. Prominent among the early doctors were Breck, Fay, Cumston, Hastings and Fairbanks. I became associated with it a few years later. No one who was not there can appreciate what a depressing place it was. Practically every baby had a green or bloody diarrhea. Many of them were dehydrated. The death rate was frightful. The beds were always full in the morning on the visit. The babies were apparently the same ones that were in the beds the day before, but a considerable proportion of them were not. The progress from this time on from an excursion boat to a well-equipped and thoroughly

well-run hospital was very rapid. The name of Dr. Henry I. Bowditch will always be associated with the boat. Much original work in the study of the summer diarrheas was done there, notably that on the bacteriology of infectious



BOSTON FLOATING HOSPITAL.

diarrhea by Dr. Arthur I. Kendall. A new boat, which ran under its own power, was procured in 1907. This boat was destroyed by fire June 1, 1927. For a number of years, however, there had been very few cases of diarrhea on the boat and it had been rather difficult to keep it filled. This quotation from a report made by a special committee of independent business men is of interest—"The intestinal diseases of children have greatly decreased and the demand for hospital treatment is more evenly distrib-

WARD ON FLOATING HOSPITAL.

uted through the year." They concluded that the hospital could serve the sick children of Boston more effectively on shore and that the rebuilding of a Floating Hospital would be in a great measure a waste of funds.

Interesting also in this connection is the experience at the *North Shore Babies' Hospital* in Salem. This was organized in 1905. Two cottages were obtained on Baker's Island, Salem Harbor, for day and permanent patients during the summer. The new hospital was erected on the present site in 1910 and babies were kept from June 1 to November 1. Since 1926, however, it has been open all the year because the "Regulation of milk has so decreased the summer emergency that there is as much, or more in fact, need for a babies' hospital in the winter."

MILK

No one who is not personally familiar with the methods of milk production and distribution, not only in our cities but also in the country districts of Massachusetts, forty years ago can appreciate how bad conditions were and how impossible it was to obtain suitable milk for babies and young children. No one who was not in practice at that time and since can realize what a terrible scourge the diarrheal diseases were in infancy or how large a part the improvement in the milk supply has played in the reduction of infant mortality. It is the improvement in the milk supply which has made the problem of infant feeding such a relatively simple matter nowadays, not the feeding of whole milk mixtures and the various combinations of the sugars of the maltose group.

Dr. Rotch was the first and, for a time at least, the only one in Massachusetts who took any active steps to get a good milk for babies. In connection with Mr. Walker he established the Walker-Gordon farm for the production of clean milk in 1891. The Walker-Gordon Laboratory for the preparation of modified milk for babies was established in Boston in the same year. At the time when these institutions were developed, Dr. Rotch was more interested in obtaining a clean milk than he was in the preparation of modified milk. In later years, clean milk having been procured, he was more interested in the work of the laboratory. It may interest you to know that, although he was accused of being financially interested in the Walker-Gordon farm and laboratory, he never had any stock in them. Incidentally, Dr. L. E. Holt of New York was a large stockholder.

The first medical milk commission in this country was established by Dr. Coit in New Jersey in 1892, 1 year later than the establishment of the Walker-Gordon farm. The Association of American Milk Commissions was established in 1905. Massachusetts was backward in this connection, the first medical milk commission in Massachusetts having been established in 1906 by the Suffolk District Medical Society at the suggestion of Dr. Charles Harrington, at that time Commissioner of Public Health. Dr. Morse was the first president and Dr. Wilder Tileston the first secretary.

Mrs. Charles Whiting saw the urgent need for a better supply of milk for the poor babies of Boston during the summer, these babies not being reached by the Walker-Gordon milk. At

her request a committee was formed in 1905 to provide clean milk for poor babies at cost, or less than cost, during the summer. A number of milk stations were established where the poor could get a reasonably clean milk at a moderate price. This work was taken over by the Baby Hygiene Association in 1909 in connection with the Welfare Stations which were established at that time. In 1922 the Baby Hygiene Association combined with the District Nursing Association to form the Community Health Association.

In 1909 through the energy of Dr. Rotch the "Milk Fund" was organized. The same work had been carried on, however, for some years in a small way before this fund was established. The object of this fund was to provide modified milk from the Walker-Gordon Laboratory for sick babies whose parents were unable to pay for it. The milk was ordered at the various out-patient departments and the babies were supervised in their homes by a special nurse. This work was continued up to the time when the physicians of Boston ceased to feed babies on modified milk.

The Waltham Baby Hospital began to furnish milk for outside babies, modified in accordance with their physicians' prescriptions, in 1900 and, I believe, has continued to do so.

While the work of Dr. Rotch and Mrs. Whiting pointed out the necessity for and the methods to be taken in the development of a pure milk supply, no great and general advances would have been made, if it had not been for the untiring work of the state and city authorities to improve the milk supply and the introduction by them of general pasteurization.

CARE AND WELFARE

Massachusetts has been the leader in many directions in the measures which have been taken for improving the care and welfare of children. The Boston Board of Health established a Division of Child Hygiene in 1911. This was one of the earliest, but not the earliest, of such divisions. It duplicated in part the work of various private charities. At first it had no clinics. In 1924 and 1925 it took over the *Welfare Stations* of the Community Health Association. There are now 18 stations, 7 in the Health Units and 11 in the municipal or other buildings. Ten thousand babies, who made 65,000 visits, were seen in 1929. These clinics are now in charge of the three major medical schools. These Health Units, or Centers, are unique and are more complete than those anywhere else in this country. Their development is due almost entirely to the vision and untiring energy of Dr. Wilinsky.

Boston was not alone in establishing clinics for well babies, or Child Welfare Clinics. These were started in many of the larger cities about 1910. I do not know of them all. Six thousand visits were made last year to those in Lowell, which were opened in 1910; about the same number to the six in Fall River, the first of which was opened in 1912; and 1200 to the Waltham clinic, opened several years ago. These figures are enough to show, however, how much is being done in this state to keep babies well. It is difficult to state in figures just how much good these stations do, as so many other factors enter into the problem. It is noteworthy, however, that in Fall River, for example, the infant mortality of 185 deaths per 1000 living births in 1910, when the first clinic was established, fell to 66 in 1930.

School Inspection. Boston, through its Health Department, was the first city in this country or abroad to establish a system of daily medical inspection of children in all the public schools. This was begun in a small way in 1890 and was adopted officially in 1894. In Boston it is now in charge of the School Committee. It has been required by state law in all cities in Massachusetts since 1906.

Child Labor. Massachusetts was the leader in regard to child labor. The most stringent law regarding the employment of children of any and all the states was passed in 1888. Her laws are still more stringent than they are anywhere else.

Forsyth Dental Infirmary. The Forsyth Dental Infirmary, established in 1914, was the first of its kind in the world. It antedates the Eastman Clinic in Rochester, New York, and is far more complete. It is hardly necessary to take up the work of this clinic in detail.

Nutrition. Dr. H. P. Bowditch made his measurements of school children in 1877. This was the first work of the kind done in this country. He later made another study, as did also Dr. W. T. Porter. The Nutrition Clinics, started by Dr. W. R. P. Emerson in 1908, constitute another unique Massachusetts contribution. Dr. Emerson's greatest contribution is the class method of instruction in nutrition. Although his work has not been appreciated as it should have been at home, it has been away from home. His methods are being carried out through state organizations in many states and in the Hawaiian Islands. Recently they have been taken up in private schools and colleges. Dr. L. Emmet Holt said that the development of the class method was "epochal in the treatment of children". This work has not received the recognition which it deserves in Massachusetts.

Dr. Fritz B. Talbot's work on the metabolism of early life at the Massachusetts General Hospital has also contributed a great deal to our knowledge of nutrition at this age.

Directory for Wet Nurses. Another unique contribution of Massachusetts to pediatries is the Directory for Wet Nurses, which was established in Boston through the energy of Dr. and Mrs. Fritz B. Talbot in 1910. It was the first of its kind in this country, if not in the world. This directory found women who were willing

to be wet nurses, kept them and their babies in its home on Binney Street, certified as to their health and sent them out as wet nurses. No one who has not scoured Boston and its environs in search of a wet nurse for a sick baby can realize what a boon it was to be able to obtain one without any trouble. After a short time the breast milk of the women who were in the home was expressed and sold by the ounce. Any surplus was given to the hospitals. This work was taken over by the Infants' Hospital in 1914. More and more milk was sold and fewer nurses were sent out. In 1925 the home was given up and nurses were no longer provided. Breast milk was collected throughout the city by nurses, "pooled" and sold. The directory severed its connection with the Infants' Hospital in 1927 and moved to 270 Commonwealth Avenue. It is now located at the Boston Lying-In Hospital.

In this connection should be mentioned the collection of breast milk for the babies on the Floating Hospital, which was originated in 1916 by Dr. Paul W. Emerson. Also worthy of mention is the experimental work which has been carried on by the Floating Hospital and the Wet Nurse Directory in drying breast milk so that it can be kept and transmitted long distances and used as needed.

PEDIATRIC SOCIETIES

Massachusetts was a little slow in establishing special pediatric societies. A meeting was called for the formation of the New England Pediatric Society by the staff of the Floating Hospital January 4, 1908. There was so much jealousy and so many factions among the pediatrists of Boston at that time that this somewhat neutral staff was the only one which could call such a meeting. The society was formed with a membership of between 40 and 50 and the constitution adopted at that time. The first president was Dr. Thomas Morgan Rotch and the first secretary Dr. Arthur H. Wentworth. The second meeting, the first at which papers were read, was held February 15, 1908. The three succeeding presidents were Drs. Charles W. Townsend, C. P. Putnam and J. L. Morse. The membership at the end of the first year was 93 and at the end of the third year 122. It is now 220. The first combined meeting with the Section of Diseases of Children of the New York Academy of Medicine and the Philadelphia Pediatric Society, which was held in Boston, was November 8, 1913. My impression is that there had been a meeting in New York the year before. These combined meetings have been held regularly since then.

The Section of Pediatrics of the Massachusetts Medical Society was established in 1920. The first chairman was Dr. John Lovett Morse of Boston and the first secretary Dr. J. Herbert Young. The chairmen since then have been Drs. Maynard Ladd of Boston, Eastman of Springfield, Howell of West Roxbury, Curry of Fall River, Richard M. Smith of Boston, Crandall of Taunton, Blackfan of Brookline, Sparrow of Worcester and Chadwell of Jamaica Plain. Dr. J. Herbert Young continued as secretary until 1928, when Dr. Joseph Garland of Boston took his place.

For many years the only pediatrists in the state were located in Boston. For a long time they could be numbered on the fingers of two hands, the really prominent ones on the fingers of one hand. None of them devoted themselves entirely to pediatrics. Even Dr. Rotch saw an occasional adult. My impression is that I was the first one who devoted himself entirely to children. This was about 1900. The number of pediatrists in Massachusetts has increased by leaps and bounds, especially during the last few years. Every city has one or more pediatrists. So have many of the towns. I am inclined to think that there are too many for their own good, at any rate financially. According to the Directory of the American Medical Association in 1929, there were 70 who limited their practice entirely to pediatrics and 92 who were especially interested in pediatrics, but did not limit their practice to it exclusively. This number is, I am sure, too low, because there are many men whom I know devote themselves to pediatrics, who are not listed in the directory under this head. It seems to me that it would be a good thing for young physicians, who are starting in practice, to think twice before going into pediatrics in Massachusetts.

HOSPITALS FOR CHILDREN

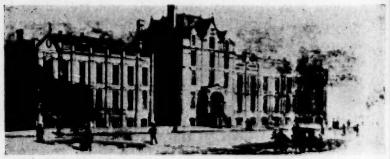
The first children's hospital in the United States was established in 1865 in Chicago. *The Children's Hospital, Boston,* incorporated in 1869 for children between the ages of 2 and 12 ill with medical and surgical diseases, was the second. The hospital was opened in a dwelling house at 9 Rutland Street the same year, the capacity being 20 beds. The first physicians were Drs. William Ingalls, Francis B. Greenough, and Benjamin E. Cotting. The surgeons were Drs. F. H. Brown, S. W. Langmaid and John Homans. In 1870 the hospital moved to 1429 Washington Street and the capacity was increased to 27 beds. The number on Washington Street was changed in 1875 to 1583.

December 26, 1882 one wing of the hospital on Huntington Avenue was opened with 60 beds. Private patients were also taken. The physicians at that time were Drs. A. M. Sumner, F. Gordon Morrill and J. P. Oliver; the surgeons, Drs. S. W. Langmaid, E. H. Bradford and A. T. Cabot. The assistant physicians were H. C. Haven and T. M. Rotch. The hospital was under the charge of an "Evangelical Sisterhood" from the beginning. They served as "voluntary nurses". In 1888 an Out-Patient

Department was opened in a new wing. At this time Dr. W. N. Bullard became "neurologist and electrician", which position he retained for many years. In 1890 a new wing was added, making the capacity 96 beds. At this time about 7000 visits were made to the Out-Patient Department yearly. Specialists were appointed

BOSTON CHILDREN'S HOSPITAL. RUTLAND STREET.

on the staff. A training school for nurses was established in 1891. It is interesting that, in 1895, at the suggestion of Dr. Morrill, all the patients were immunized against diphtheria every 3 weeks. This was the first time that immunization against diphtheria was used on a large scale. In 1900 about 22,000 visits were made annually to the Out-Patient Department. In this year the Out-Door Relief Department was established with a visiting nurse and also a visiting physician. The name was changed to Social Service Department in 1909. It is worthy of note that the Out-Door Relief was established 10 years before the Social Service Department



BOSTON CHILDREN'S HOSPITAL.
HUNTINGTON AVENUE.

for Children at the Massachusetts General Hospital and that the name was changed to Social Service Department a year earlier. In 1902 Dr. Rotch became the head of the medical service.

The Longwood Avenue building was entirely occupied in June, 1914. Its capacity was 120 beds, 40 of which were medical. Dr. Morse became visiting physician at that time. In 1916 the Infantile Paralysis Clinic was started and, 3 years later, special clinics in the Out-Patient Department for anaphylaxis, syphilis, tubercu-

WARD IN CHILDREN'S HOSPITAL,
HUNTINGTON AVENUE.

losis, nutrition and heart disease. In 1921 Dr. Schloss became visiting physician and the Private Ward was opened. In 1922 a laboratory building was built. Dr. Blackfan took charge the following year. Numerous additions have been made to the hospital during the last few years, materially increasing its capacity and the scope of its work.

Wellesley Convalescent Home. The Convalescent Home of the Children's Hospital was

CONSULTING ROOM. CHILDREN'S HOSPITAL,
HUNTINGTON AVENUE.

opened in Wellesley in 1875. This was the first country branch of a hospital in this country. At first it was open only in the summer, but since 1894 has been open all the year.

Massachusetts Infant Asylum. This institution was incorporated in 1867. The reason that it was undertaken was that the mortality of foundlings in the state almshouses was from 70 to 80% and that of babies in the first year in the state institutions 35%. The object was to take foundlings, deserted babies and those ba-

bies whom their mothers could not support. The intention was to keep as few as possible in the hospital—never more than 30—to give them as much breast milk as possible, to send them out to board as soon as possible, and to get them adopted. The first home was in Dorchester at the corner of Washington and Columbia Streets. The physicians were Lucy E. Sewall and Charles E. Stedman. In 1869 the hospital moved to Walnut Street, Brookline, "within 2 minutes' walk of J. Anson Giles' Grocery Store". It is worthy of note that wet nurses were kept in the hospital and that all babies under 3 months old were fed partly on breast milk.

In 1872 Dr. C. P. Putnam was added to the staff. He was on the staff for many years, later becoming president, which position he held to 1910. The success of this institution was due very largely to his interest and untiring energy.

In 1876 a hospital building was erected on Curtis Street, Jamaica Plain. In 1884 the name of the street was changed to Chestnut Avenue. The capacity in the beginning was 33. This building, which was improved from time to time, was used until the end. In 1887 Dr. Sewall became consulting physician. Drs. George K. Sabine and Emma L. Call were on the staff for 10 or 15 years. Other physicians who were connected with the hospital were, in the order of their appointment, H. W. Broughton, A. P. Perry, Helen B. Carpenter, E. C. Stowell, F. P. Denney, A. N. Broughton, Wilder Tileston, William W. Howell, Fritz B. Talbot, William P. Lucas.

Up to 1895 the asylum got many babies from the state. Most of the time it had about 25 in the home and between 100 and 150 boarded out. The mortality in the seventies and eighties was 10% or less, in the early nineties about 5%. These figures are remarkable.

For some years the hospital was in financial difficulties because the state did not send babies, but it soon got to going well again. In 1906 it became definitely a hospital, but also continued to board out babies. At this time it had 58 boarding homes and 26 visiting physicians to them. A training school for nursery maids was established at that time.

In 1910 the finances were in very serious condition. Dr. C. P. Putnam resigned, a new board of directors, composed of young business men, took charge, all the physicians were dropped and Dr. H. I. Bowditch was nominated by Harvard and made physician in charge. Two years later the name was changed to the Massachusetts Baby Hospital. It may be that the name was too much for it; at any rate, it disappeared without trace in a short time.

Infants' Hospital. The West End Nursery Society was incorporated in 1881. It ran a small house on Blossom Street and started a nursery for babies under 2 years of age. It soon began to board out babies in supervised homes. It began to take care of a few sick babies in the hospital in 1882, and opened an Out-Patient Department in the same year. It is noteworthy that this Out-Patient Department was started 6 years before that of the Children's Hospital. It kept the hospital open during the summer of 1883, but, on account of the excessive death rate, had to close it after this year. In the beginning the consulting physicians were Drs. R. M. Hodges, Francis Minot and H. I.

INFANTS' HOSPITAL, 37 BLOSSOM STREET.

Bowditch. The attending physicians were Drs. H. C. Haven and T. M. Rotch.

In 1884 the name was changed to the West End Nursery and Hospital for Infants, at 37 Blossom Street. It is noteworthy that in 1886 the annual report emphasizes the teaching of mothers. In 1887 the day nursery was given up. In 1890, 3 houses were connected, the entrance being as before at No. 37. Dr. R. W. Lovett became surgeon in 1891. A new wing with an operating room was built in 1892. In 1893 a surgical out-patient department was opened. Up to this time the physician in charge sat at one side of the desk when he was a physician and at the other when he was a surgeon. It may be interesting to describe the conditions in the out-patient department at that time. The waiting room was roughly about 30 feet by 12 feet. It was heated by a stove. The medical and surgical examining rooms were separated by a wooden partition. Each was about 5 feet wide by 8 or 10 feet long. Each had a smaller room out of it about the size of a closet. There was another stove in the medical examining room, but no source of heat in the surgical. The physician had a nursery maid to help him; the surgeon a nurse. The conditions can be imagined when it is remembered that during the summer it was not at all uncommon to have 100 patients there in a morning, sometimes even more. The patients, their mothers, the other children in the family, were all over everything, overflowed on to the sidewalk and out into the street. Later a tent was erected in the back yard to accommodate the overflow.

In 1894 Dr. Haven resigned and Dr. Rotch became medical director. A training school for graduate nurses was established in 1895, and in 1898 the first class of nursery maids was graduated. The name was changed in 1903 to the Thomas Morgan Rotch, Jr. Memorial Hospital for Infants, in memory of Dr. Rotch's son, who had recently died. In 1907, the name was shortened to the Infants' Hospital. The Blossom Street Hospital was closed October 1, 1913. At that time more than 15,000 visits a year were being made to the Out-Patient Department. This department was transferred to the Children's Hospital. The majority of the patients, however, went to the Out-Patient Department of the Massachusetts General Hospital, where a special children's room had been established 3 years before.

The Rotch Memorial Building at 55 Van Dyke Street was opened March 3, 1914, for a few babies. At that time "only 66 beds were available in Boston for sick babies outside of the Floating Hospital". The Massachusetts Infant Asylum was closed in June of that year, cutting down still further the number of beds for babies. It is a pathetic fact that Dr. Rotch did not see the opening of this building, which had been his dream for many years. He was dying at the time and his funeral was held a few days later in the lobby. With the opening of this building a complete social service was established. On account of lack of funds the building was not opened entirely until January, 1916.

This building, while a work of art, was probably as unsuitable for the purposes for which it was intended as it possibly could be. Consequently, in 1923, it was sold to Harvard University for the new School of Public Health. A new building was erected on the land of the Children's Hospital and occupied in June. This building is also a memorial to Thomas Morgan Rotch, Jr. It is owned by the Infants' Hospital Corporation and administered by the Children's Hospital at the expense of the Infants' Hospital.

Among the physicians connected with the Infants' Hospital were Drs. A. H. Wentworth, John Lovett Morse, Maynard Ladd, Franklin W. White, John N. Coolidge, C. H. Dunn, Philip H. Sylvester and William W. Howell. Soon after the direction of the hospital was taken over by Dr. Schloss in 1921, Drs. Dunn and Howell, who had been in charge of the hospital for a number of years, were forced to resign. Dr. Dunn, one of the most brilliant men in pediatrics in Boston, and one of the best teachers in the Harvard Medical School, gave up pediatrics and left Boston.

So far as I know there are but two other hospitals exclusively for infants in Massachusetts. The *Waltham Baby Hospital* was opened in 1900. That summer it took care of only 8 babies. In 1902 another building was procured, however, with 20 cribs. This institution is still active, but is, I think, no larger than it was. It now has a large well-baby clinic and is closely connected with the work of the Waltham Hospital.

The Babies' Summer Hospital Society was organized on the North Shore in 1905. It had 2 cottages on Baker's Island, Salem Harbor, for day and permanent patients during the summer. A new hospital was erected on the present site in 1910 and the name changed to the *North Shore Babies' Hospital*, and the hospital was kept open from June 1 to November 1. In 1926 it was open all the year and has been since then. In 1928 it was accepted by the American College of Surgeons, a surgical service being added the next year. It now has 50 beds for babies under 2 years of age. It gives a three months' course for 14 pupil nurses and a nine months' course for nursery maids. Nearly 400 patients were brought there in 1930.

The Children's Heart Hospital was established in Brookline in 1913 by Mrs. Carl P. Dennett. She supported this institution entirely from the first. It was devoted to the care of children convalescent from acute endocarditis. Unfortunately, it was given up in April, 1923. This institution was never given the recognition which it deserved. The work which was done there was not appreciated as it should have been. Furthermore, the physicians who were supposed to be in charge, did not give Mrs. Dennett the support which she deserved. Fortunately, this work is now to be taken up by the House of the Good Samaritan.

None of the large hospitals in Boston had any special wards or departments for children for many years. All of them do now.

The New England Hospital for Women and Children was founded in 1862 by Dr. Marie Zakrzewska. Although it was called a hospital for women and children, there was no separate building for children until 1910, and the pediatric service was not organized until 1922. Thirteen women physicians have been or are now on this service. Among them are Ruth Weissman, Clara Loitman and Rachael Hardwick. In 1922, 335 out-patients were treated and 227 in the ward; in 1930, 1003 out-patients and 476 in the ward.

Boston Dispensary. There was a special children's room at the Boston Dispensary as far back as 1890, perhaps before. I remember it and occasionally worked in it. The records were kept in a big book. They consisted of the name, diagnosis and remedy. A children's department was established in 1904, the physicians being Drs. Disbrow, E. C. Stowell, W. H. Robey and R. H. Larrabee. The Tyler Street Nursery was discontinued in 1908. It was converted into a hospital and the Boston Dispensary staff placed in charge from 1909 to 1912, when the present children's ward at the Dispensary was opened. This ward was admin-

istered by the Harvard Medical School, W. P. Lucas being in charge to 1913, A. H. Howard to 1916 and Maynard Ladd to 1929. Since that time the children's department has been administered by the Tufts Medical School, Dr. E. W. Barron being the physician-in-chief. Further changes will soon come with the establishment of the New England Medical Center with the new Floating Hospital building.

An interesting feature of the work of the Boston Dispensary has been the boarding out of babies and children. The Children's Aid Society and the Church Home Society had boarded children out for years. The Massachusetts Babies' Hospital was absorbed by the Children's Aid Society in 1914. At that time the Boston Dispensary agreed to provide medical examinations and hospital care for these children when needed. Dr. Arthur Howard was placed in charge. A similar agreement was made with the Church Home Society in 1915. In October, 1916, the Preventive Clinic was organized and Dr. Maynard Ladd was made the medical director. He is still in charge. The purpose of this clinic is to supervise the medical care of children in foster homes. Initial physical examinations are made and periodical follow-up work carried on.

There was no children's services at the *Massachusetts General Hospital* until 1910, although a special space was provided for them in the Out-Patient Department in 1903. Up to that time children were treated in the out-patient department at first by the physicians in the men's department, and later by those in the women's department. Dr. Fritz B. Talbot was made chief of the children's medical department and Drs. Richard M. Smith and J. Herbert Young assisted him in the Out-Patient Department. The children's ward contained 7 beds. In the beginning only 3 patients a day were treated in the Out-Patient Department. The number of out-patients, however, increased very rapidly, especially after the Infants' Hospital Out-Patient Department was closed. This department from the beginning has paid special attention to social service, although, apparently, it was not, as is commonly supposed, the first Social Service Department for Children in the state. The extent of the work which they do is shown by the fact that 1625 children were taken care of by the social service department in 1930. A cardiac clinic was established in 1914 and an epileptic clinic in 1925. This was the first free out-patient clinic for the treatment of this disease by the ketogenic diet established anywhere in this country. A full-time visiting physician was introduced in 1926. Dr. Bengt Hamilton was the first incumbent. Dr. Harold L. Higgins now holds the position. The children's ward was remodeled in 1926 and now has 40 beds.

A Pediatric Service was established at the *Boston City Hospital* in June, 1922. Up to that time children with medical conditions were treated in the adult wards by the regular medical staff, except that in one of the adult wards for women a room containing 8 cribs was set aside for "feeding cases". The newborn babies were taken care of by the obstetricians until after the World War.

In 1922 3 special wards were set aside for the care and treatment of all ill children admitted to the hospital. All services had patients in them. The capacity is from 140 to 160 beds. About one-half of the patients are medical. In addition, the Pediatric Service has charge of the 3 wards for newborn babies, with a capacity of 90 beds. The Trustees are now planning to erect a new building for children to contain 240 beds.

In 1924 a new Out-Patient building was completed and a separate Pediatric Section established with daily clinics. There is also a special Cardiac Clinic once a week and a Baby Hygiene and Feeding Clinic every week. In 1930 nearly 9000 visits were made to the Out-Patient Department and over 700 to the Feeding Clinic.

The Pediatric Service at the Boston City Hospital has been a teaching service from its incipiency. It has shown no favors. It was at first connected with Harvard, then with Tufts, and now with Boston University.

The Carney Hospital was late in paying attention to children. A special Out-Patient Department was opened in 1921 with Dr. E. S. O'Keefe in charge. It is only open, however, 2 days a week and the clinic is small. A special ward containing 10 beds was opened in 1926. It was enlarged to 14 beds in 1929. Dr. Paul J. Jakmauh is in charge.

The new *Beth Israel Hospital* has a small ward of 20 beds for children. It is not, however, devoted especially to medical cases. It also has a special Out-Patient Department with daily clinics.

Another institution well worthy of mention is the *Boston Nursery for Blind Babies*. This was incorporated in 1901, the primary object being to take care of babies and children up to 5 years of age, suffering with or as the result of ophthalmia neonatorum. It started its work with 2 babies in a house on Fort Avenue, Roxbury, under the direction of Miss Isabelle Greeley, who was previously Superintendent of the Kindergarten Department of the Perkins Institute. It occupied its present building at 147 South Huntington Avenue in 1910, and it has been in charge of Miss Jane Russell during the last 25 years. It now has 26 beds. Ophthalmia neonatorum is now, however, largely a thing of the past and the beds are filled by patients suffering from other and varied eye lesions.

The Boston hospitals have not been, however, the only ones to take care of children. Many of the hospitals in the larger cities have special wards for children and some of them special pediatric staffs. It will be impossible to men-

tion them all in detail, although I have collected a considerable amount of data concerning them. The children's wards in these hospitals are, however, not for medical cases alone, surgical, orthopedic and throat cases also being admitted. In many of them, I am inclined to think, the proportion of medical cases is relatively small. While children's wards are common, special out-patient departments for children are comparatively rare in these cities.

Lowell seems to have had the first children's ward in the state, the Lowell Corporation Hospital having established one in 1839. This is now the St. Joseph's Hospital and has a ward of 15 beds. St. John's Hospital, established in 1867, has always had a special room or ward for children. Since 1920, this ward has had 20 beds. There has also been an out-patient clinic for children once a week since 1926. The Lowell General Hospital has had a special room or ward for children since 1893. It now contains 16 beds. There has been an out-patient clinic for children once a week since 1930.

A Dispensary for Women and Children was opened in *Worcester* in 1874. This was the beginning of the Worcester Memorial Hospital. In 1888 a building was erected and the staff was divided into 2 parts, one caring for the women and one for the children. One hundred and nine children under 14 years of age were admitted during the first 6 months, many of them ill with medical diseases. The first staff was Dr. Lemuel F. Woodward, Dr. George O. Ward and Dr. Homer Gage. A special ward with a capacity of 20 beds was opened in 1892. That the value of out-door air was appreciated in the past, as well as in the present, although nothing is said about sunlight, sun tan, and Vitamin D, is shown by the fact that in 1898 the children of Worcester gave the hospital a "tasteful pavilion, covered with a roof, but open on all sides, for the use of the children, among the trees, a little distance east of the hospital". It is said that they there "revelled in the fresh air and enjoyed frolic without disturbing the other patients". In 1909 a new children's wing with a capacity of 48 beds was erected. In 1925 a full-fledged pediatric department was established and a special out-patient department started the following year. The development of the pediatric department of this hospital was due largely to the vision of Dr. Lester Miller and the untiring work of Dr. Merrick Lincoln.

A children's ward was opened at the Worcester City Hospital in 1914, with a capacity of 60 beds, and an out-patient department in 1921. The Hahnemann Hospital opened a pediatric ward of 10 cribs in 1926 and the St. Vincent Hospital has facilities for the care of 50 infants and children. Neither of these hospitals have out-patient departments for children.

In 1900 the Mercy Hospital in *Springfield* opened a ward of 30 beds for children, while the Wesson Memorial Hospital opened one for 6. This was enlarged in 1926 to 26 beds. The Springfield Hospital opened a ward of 27 beds for children in 1915 and established an out-patient department for children 2 days a week in 1928. The Isolation Hospital was also opened in Springfield in 1899. A new hospital, to be finished this year, will contain 100 beds.

The *Fall River* General Hospital established a children's ward in 1914, which now contains 26 beds. The Union Hospital established a ward of 8 beds in 1910. A new building was erected for the children's ward in 1916 with 30 beds. It now contains 40 beds. The Truesdale Hospital has a ward of 20 beds, opened in 1925. St. Ann's Hospital established a ward for children, containing 22 beds, in 1929. The Union Hospital has a large out-patient department established in 1916 and St. Ann's Hospital has one, established in 1928.

St. Luke's Hospital in *New Bedford* opened an out-patient department for children in 1921. The Lombard Building for Children was erected in 1927. It contains 35 ward beds and 30 private beds. This building is admirably adapted for the care of babies and children. All services have patients in it.

A ward with 12 beds for children was opened in the Gale Hospital in *Haverhill* in 1917. The Shattuck Ward in the Lawrence General Hospital, *Lawrence*, has 20 beds for children. An out-patient department was opened there in 1894. It has special habit and paralysis clinics. St. Luke's Hospital in *Pittsfield* opened a children's ward with 10 beds in 1926. The House of Mercy had a cot for children in 1874 and opened a ward with 16 beds in 1902.

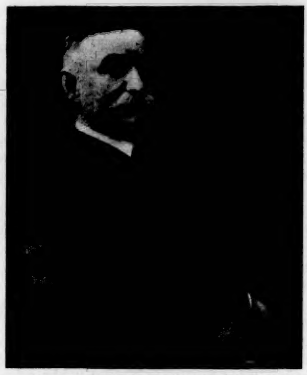
Previous to the opening of the Woolson Building for Children at the *Cambridge* Hospital in May, 1930, there had been but twelve beds especially assigned for sick children in the whole city. This building has four floors, separate eubicled wards for medical cases, private rooms, isolation rooms and a solarium. Its capacity is about 85. Dr. J. Herbert Young was appointed visiting physician when this ward was opened. Up to this time there had been no special pediatric staff. There is no special out-patient department for children.

It is evident, therefore, that all the cities in the state are providing special facilities for the care of children. Whatever may have been the conditions in the past, it is certain that now a great deal of attention is being given to the medical care of sick infants and children.

DR. ROTCH

In closing I cannot refrain from paying a tribute to Dr. Thomas Morgan Rotch, the father of Pediatrics in Massachusetts and New England, and one of the pioneers in this field in the United States. The more one studies the history of Pediatrics in Massachusetts, the more

one realizes what he did and what an important part he played in the development of this specialty. Up to the day of his death he was the leader in the campaign for the development of



DR. THOMAS MORGAN ROTCH.

Pediatrics in Massachusetts. After the death of his only son, that was all he lived for. During the early years he often fought alone, frequently against what seemed to be insuperable odds. He never lost courage, however, and, if beaten, tried again and again until he won. He was often misunderstood, misinterpreted and misjudged. He was never appreciated in Massachusetts at his true worth. His career exemplifies very well that a prophet is never without honor save in his own country and among his own people.

He was born in Philadelphia in 1849. He graduated from Harvard in 1870 and received his medical degree from the same institution in 1874. He was medical house officer at the Massachusetts General Hospital in 1874. He then studied in Berlin, Vienna and Heidelberg for 2 years, taking up practice in Boston in 1876. He was soon appointed on the staffs of the Boston Dispensary and the Boston City Hospital. He became almost at once interested in the study of infants and children and quickly became connected with the Children's Hospital and the Infants' Hospital. Their development during many years was due almost entirely to his interest and energy. He delivered the first systematic course of lectures in Pediatrics at the Harvard Medical School in 1879-1880, on the "Prognosis, Diagnosis and Treatment of Diseases in Children." Harvard University established the Chair of Pediatrics in 1888. Dr. Rotch was the first incumbent with the title of assistant professor. He became full professor in 1893. It has been believed for a long time that he was the first full professor of pediatrics in this country. It is evident, however, that this belief was mistaken, as Drs. Morse and Jackson were appointed full professors at Boston University 20 years earlier. He developed and organized the most progressive Department of Pediatrics in America. This department was independent and stood for its own beliefs and teachings. Dr. Rotch was best known for his teaching of infant feeding. Very few, however, outside of the men who worked with him, have appreciated just what he meant and what he stood for. None have realized that he stood primarily for clean milk. His work on Pericarditis with Effusion has been forgotten. Few remember that he was the first to study normal development with the roentgen ray. Few remember that he always emphasized in his teaching the importance of the study of the normal infant and child and that he was one of the pioneers in establishing training schools for nursery maids and providing instruction for graduate nurses in the care of children.

His life was on the whole a sad one. He always encountered opposition where there should not have been any opposition. He was not appreciated during his life as he deserved to be. He lost his only son. His wife became an invalid and mentally incapacitated. He lost much of his property during the latter years of his life. He died March 9, 1914 and was buried from the building, which he had worked for many years to erect in memory of his son, without having had the opportunity of seeing patients treated in it.

SECRETARY GARLAND: I am sure we are all very much indebted to Dr. Morse for the great amount of labor that this paper has involved. It is a real contribution to the history of medicine.

Has anybody any comment or anything they wish to add? If not, I will ask the nominating committee to make its report.

DR. HOWE: Your committee appointed by the chairman wishes to nominate for chairman for the ensuing year Dr. Edwin T. Wyman of Boston; for secretary, Dr. Joseph Garland of Boston.

SECRETARY GARLAND: You have heard the report of the nominating committee—Dr. Edwin T. Wyman for chairman and Dr. Garland for secretary. What is your pleasure?

On motion, it was voted that the chairman of the Nominating Committee cast one ballot for the names as submitted; and the ballot being so cast, the candidates named were declared elected.

SECRETARY GARLAND: The next paper this morning is on "Urinary Infection in Children", by Dr. Richard M. Smith.

URINARY INFECTION IN CHILDREN*

BY RICHARD M. SMITH, M.D.†

PEDIATRIC literature is so full of articles on pyelitis that one might hesitate to add to its bulk were there not certain misunderstandings which need correction. The term "pyelitis" is a misnomer because it is based on a false conception of the pathology of the condition so designated. Pyuria is a better word than pyelitis and is used to indicate a condition associated with the presence of pus in the urine. Until quite recently there was complete confusion of many quite different pathologic processes; therefore, the older publications are of little value as an aid to an accurate understanding of this frequent urinary finding. For the purposes of this discussion consideration will be limited to pyuria as it occurs in infants and young children, although many of the facts as presented are applicable also to older children and to adults.

A diagnosis of pyuria is justified only when the number of leucocytes in the urine is considerable, at least eight or ten single cells per high power field and a moderate number of clumps of cells. The examination of the urine should be made in an uncentrifuged specimen and before it is too old. In female infants, particularly if there is some local vaginal irritation, single cells in small numbers appear in the urinary sediment in most instances and have no pathologic significance. This fact has been frequently overlooked and many of the reports and discussions of "pyelitis" include such cases and have lead to erroneous conclusions especially with reference to sex distribution.

An examination of the urine in infants is often not made because of the supposed difficulty in obtaining a specimen and when a specimen is obtained the sediment is often not examined unless there is a considerable amount of albumin. The examination of the urine, including the sediment, should be a routine procedure as a part of the physical examination. In boys it is very simple to obtain a specimen by the attachment of a test tube to the penis by a strip of adhesive. In girls this same method of collecting a specimen may be used by applying a larger piece of adhesive to which a test tube is attached to the whole vulval region. It is to be remembered also that it is always possible to catheterize infants. In females this is a very simple procedure and it is in girl babies that other methods of obtaining a specimen present some difficulty.

In most cases of pyuria a bacteriologic study of the urine shows the presence of colon bacilli. This is not invariably the case. Staphylococci, streptococci, and other organisms are found in a small percentage of instances. A small number of bacteria may be present without signs of urinary disease. In healthy children the urine was found to be free from bacteria in one-third of the cases by Helmholz[1] and in one-half the cases by Hartshorn[2].

Pyuria in infants and young children is dependent usually upon one of four conditions.

1. Infection of the kidney.
2. Inadequate drainage of the kidney dependent upon some congenital anomaly of the urinary tract.
3. Tuberculosis of the kidney or urinary tract.
4. Renal or ureteral calculi.

1. Infection of the kidney was formerly supposed to be confined to the pelvis with only occasional invasion of the parenchyma. From the work of McDonald[3], Thiemich[4], and others, especially Chown[5] and Wilson and Schloss[6], we know that this conception is incorrect and that the pathologic process is primarily an extensive focal and diffuse suppurative lesion of the interstitial tissues of the kidney with only a slight catarrhal or no change in the pelvis. Microscopically the submucosa of the pelvis may, but does not always, show some increase of mononuclear cells. Rarely there are also similar microscopic changes in the ureter and bladder. In the interstitial tissue the mononuclear and polynuclear cells at first and in the milder cases occur in small areas usually near the blood vessels, but later and in severe cases the process may go on to abscess formation. Healing takes place either without scars or with the formation of fibrous tissue. If death occurs early the kidney may appear macroscopically normal or later only swollen or congested. In chronic infection there may be an adherent capsule. Both kidneys are usually involved, but often the right more severely than the left, and if the infection is unilateral, the right side is affected more often than the left. Chown[5] suggests that this more frequent right-sided infection may be due to stasis from the pressure of the liver on the renal vessels thus increasing the permeability of the kidney to bacteria.

It is interesting that in the autopsy reports of infection of the kidney the great predominance of females over males is not found. The supposed large percentage in female infants is probably due to the fact that in the clinical reports of pyelitis many infants are included as ill with the disease on the evidence of the finding of a few scattered pus cells in the urine, but as has already been stated this is of no pathologic significance since the cells are derived from the vagina. Chown reports from the Harriet Lane

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Hospital that in one hundred and five cases under two years of age sixty per cent. were girls and forty per cent. were boys.

The route by which infection reaches the kidney has been investigated intensively for many years. The excess of female cases has been used as one argument in favor of the ascending route from the bladder and ureter as against a blood stream infection. The great difficulty, almost impossibility, except after causing stasis in the kidney or trauma to the bladder or using excessive numbers of bacteria of producing an ascending infection from the bladder to the kidney would seem to indicate that the blood stream is the usual method of infection[7, 8]. Virulent microörganisms may pass through the kidney without producing any damage[9] and only under certain circumstances is infection produced. There is evidence to indicate, however, that under some circumstances infection may occur by the ascending route, probably via the lymphatics[10], and this method may account for the excess of female over male cases. Infection of the kidney from the urethra occurs much more easily than from the bladder[11]. The lymphatics play the important rôle in such infection. In favor of the blood stream infection is the fact that infection of the kidney is often associated with infection elsewhere in the body. Chown[5] calls attention to the seasonal incidence of pyuria, February and March, August and September, the times when respiratory and intestinal disturbance are also most common. It is possible that infection may pass directly from the bowel to the kidney via the lymphatics[12, 13, 14]. Although there has been considerable experimental work in an attempt to establish such connection, conclusive proof that this route is of great significance is lacking.

It is unnecessary to present a detailed discussion of the symptomatology and the physical findings of acute infection of the kidney in infants. It may be noted, however, that the disease frequently has a stormy onset with nervous manifestations and convulsions. Gastro-intestinal symptoms, vomiting and diarrhea, are common and urinary symptoms often absent. The temperature is usually high, ranging not infrequently up to 105° to 106°. If the children are old enough to talk they sometimes complain of abdominal pain. Not infrequently the onset of the disease is much less abrupt and there are no symptoms other than a persistent temperature. On physical examination pallor is usually present not dependent upon anaemia and there may be tenderness and spasm in the upper quadrant of the abdomen and in the costovertebral angle. The diagnosis can be made only by an examination of the urine.

In the treatment of pyuria due to kidney infection one should bear in mind the pathologic condition with which one is dealing. The condition should be treated on the same basis as any acute infection. Rest in bed and forcing fluids are without doubt the two most important therapeutic procedures. There is some evidence to indicate that urinary antiseptics are of value and it is reasonable to employ them. If used they should be given in adequate doses. In my experience methenamine has produced the best results. Relief of symptoms, such as pain on urination and frequency, if they occur may be brought about by the administration of alkalies in sufficient doses to produce a strongly alkaline urine. This may also have some therapeutic effect by retarding the growth of bacteria. Other procedures such as the use of vaccines are generally recognized as of no benefit. Pelvic lavage in the persistent cases seems to hasten recovery and a complete cure not infrequently follows one or two such treatments. In view of the pathologic process one might wonder why favorable results should follow this procedure. It may be that in these cases the pelvic infection is more marked. This, however, is pure speculation. Frequently spontaneous recovery of the urinary infection occurs with a cure of the primary focus of infection, most frequently located in the tonsils or dependent upon infection in the gastro-intestinal tract or occasionally in association with carious teeth[15]. It is important to cure such primary infection, by tonsillectomy for instance, in persistent or recurring infection of the kidney.

A word should be said about pyuria in the newly-born as this condition is not uncommon but is frequently overlooked. This was first described by Kovalesky and Moro[16] in 1901 and since then many case reports have been published[17, 18, 19, 20]. The infection usually occurs during the first few days of life and is found in both male and female children, but more frequently in boys. Usually there is a sudden rise in temperature without urinary symptoms and with a normal physical examination. The urine shows a large number of leucocytes and frequently pus cells in clumps. Colon bacilli are found in most of the cases although other organisms occur. Most cases recover with the simple expedient of forcing fluids but urinary antiseptics may be reasonably employed. The duration of the temperature is usually only a few days and the urine becomes clear within a week.

2. When pyuria is not due to an acute or chronic infection of the kidney such as has been described it is commonly associated with some anomaly of the urinary tract. Such anomalies are common in children. Bugbee[21] reports that among 4,909 autopsies at The Babies' Hospital some congenital anomaly of the urinary tract was found in two and one-half per cent. of the cases. These anomalies may occur anywhere from the urethra to the kidney itself and may cause obstruction either by kinking and narrowing of the ureter or by pressure on the ureter from outside. Among the common conditions are an aberrant

vessel to the lower pole of the kidney, horseshoe kidney, double ureters, megaloureters, and urethral valves. All of these cause some interference with urinary flow and may result in dilatation of the pelvis and destruction of kidney cortex. A cystogram will give evidence of these conditions if there is influx of urine from the bladder into the ureter. This is a simple procedure in the youngest infants causing no inconvenience to the patient and often yielding satisfactory results. Cystoscopy and ureteral catheterizing with pyelograms is possible in very young infants and should be employed where the cystogram is negative or other means of diagnosis inconclusive. Uroselectan often reveals the condition clearly especially when the obstruction to urinary flow is considerable. Temporary restriction of urinary flow by pressure of a rubber ball on the abdomen assists greatly in obtaining satisfactory plates. Investigation by cystogram, pyelogram, or uroselectan should be carried out in all children with persistent or recurring pyuria, otherwise unexplained, because it is important not to delay surgical treatment. If the obstruction is not relieved early so much destruction of kidney parenchyma will occur that urinary function will be reduced below the point compatible with life.

3. Pyuria may be caused by tuberculosis in the kidney or elsewhere in the urinary tract. This condition is not frequent in infants and young children except as part of a general tuberculous infection. It should, however, always be borne in mind as a possibility. The diagnosis can be definitely proved only by the finding of tubercle bacilli in the urine established by guinea pig inoculation.

4. Kidney and ureteral calculi are found not infrequently in young children. They may produce no pain. Usually, however, the urine at some time or other shows blood in small amounts perhaps only distinguishable by microscopic examination of the sediment. A roentgen examination will usually reveal the presence of stone.

In conclusion we may emphasize these points as deserving particular consideration.

1. Pyuria in infants and young children is most often dependent upon an acute infection of the kidney and should be treated as any acute infection with reliance primarily upon rest and the ingestion of large amounts of fluid. Urinary antiseptics, especially methenamine, are also of value in combating the local manifestation of the disease.

2. Kidney infection may be secondary to infection elsewhere in the body, especially the tonsils and gastro-intestinal tract, and these primary foci of disturbance should be treated as a means of curing the kidney infection.

3. Congenital anomalies of the urinary tract are common, and by causing obstruction to urinary flow result in pyuria, hydronephrosis, and destruction of kidney cortex. Investigation to determine the type of anomaly and surgical treatment should be undertaken early to avoid loss of kidney function.

4. Tuberculosis and calculi of the urinary tract should be constantly borne in mind as possible causes of pyuria.

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SECRETARY GARLAND: The discussion of this paper will be opened by Dr. Thomas H. Lanman.

DR. THOMAS H. LANMAN: The surgical aspects of pyuria in children may be divided into a discussion of the acute and chronic forms. The acute infections of the kidneys seldom require surgical treatment. Many are due to a focus of infection elsewhere in the body; the treatment of the underlying condition plus rest in bed, and forcing fluids, will clear up the condition in the vast majority of cases. It is our belief that large amounts of fluid are of greater importance than the actual urinary antiseptic used. However, we feel that caprokol and methenamine are probably better than urotropine. There is one point worthy of mention in these acute infections of the kidneys, especially those where the infection is on the right side, and in which the differential diagnosis between an acute intra-abdominal lesion and a renal lesion is difficult. The acute renal infection, probably hematogenous in origin, may give suppression of urine in the affected kidney during the first 24 to 48 hours. Therefore pus cells may not be found in any large amount in the specimen of urine examined. This may lead to error in diagnosis by the apparent exclusion of the kidney as the cause of the symptoms. It is quite usual, however, in cases of renal infection to find the constitutional symp-

toms; the temperature, prostration, white count, etc., out of proportion to the local signs on the right side of the abdomen. For example, a child with temperature of 103°-104°, a high white count and general toxemia, developing within a comparatively short time should show more generalized spasm and tenderness of the abdomen if the symptoms are due to a spreading peritonitis from a ruptured appendix. In kidney conditions there will, of course, be tenderness in the c. v. a. on the affected side, even though pus is not found in appreciable amounts in the urine.

When does the acute attack of pyuria become chronic and require more thorough investigation? A single attack that does not clear up in the course of 3 or 4 weeks under adequate medical care requires further investigation. Mild attacks which recur at intervals of a few weeks, if more than 2 or 3 attacks, justify further investigation. This further investigation should proceed in some such manner. Having eliminated so far as possible other sources of infection, a flat plate of the abdomen should be made. This will generally establish the presence or absence of stone. Cystography in infants and children is a safe and easy procedure, and well within the province of the general practitioner and pediatrician. If definite information is not obtained by these means, the visualization of the urinary tract either by intravenous urography or retrograde pyelography should be obtained.

Intravenous urography is a valuable adjunct in the diagnosis of urinary tract diseases in the young. With improvement in the drug itself and in the technique of administration, its value will undoubtedly increase. At present its use has definite limitations, its value being lessened in cases that have any marked degree of pyuria.

The cases requiring urological investigation in this age group however, that do show marked pyuria, is about 60%. So at present this method is of the very least value in a large per cent. of cases where it is most desirable, because the information so obtained is often slight and unreliable. Its value is greatest in certain of the obstructive lesions, such as calculus (stone) where there has not been a great deal of kidney damage. In such cases retrograde pyelography may often be dispensed with. The dangers of intravenous urography are slight, but must be considered at present. Reaction, while unusual, is not predictable, either from the degree of kidney damage present, as shown by blood studies and functional tests or from the clinical picture. Its greatest danger is in incorrect interpretation of the rather unreliable urograms sometimes obtained.

During the past year, an additional valuable aid in the urological investigation of children has been the use of Avertin, as a basal anesthesia for children. By the use of this drug prolonged anaesthesia during cystoscopy and pyelography has been eliminated. It is necessary only to use a small amount of gas and oxygen during the introduction of the cystoscope and the passing of the ureteral catheters. An additional advantage is that the kidneys continue to excrete, and it is possible to obtain divided specimens for functional and bacteriological study. Heretofore pyelography under ether caused a marked diminution of secretion of urine and it was extremely difficult to obtain specimens from each kidney. Gas and oxygen alone is too dangerous in these young subjects because of insufficient relaxation.

We feel that cases in which the cause of the persistent pyuria has not been determined by careful history, physical examination, plain plates and cystograms, warrant cystoscopic examination. Obscure lesions are very largely the result of congenital anomalies, the most important of which are those which cause obstruction, with urinary stasis above and subsequent infection. Among the common causes of urinary obstruction with resultant infection are faulty implantation of the ureters into the bladder, anomalies at the ureteropelvic junction and pressure from aberrant vessels over the course of the ureters.

Less common causes of pyuria found in 243 cystographic examinations were: double ureters found in ten instances, renal stone nine times, ureteral stone twice, bladder stone twice, kidney tumor twice, horseshoe kidney twice, bladder diverticulum once, polycystic kidney three times; obstruction of the urethra in the male was found six times. The surgical removal of the cause of obstruction in a large majority of these cases yielded gratifying results. The megalo-ureters of infancy, in which there is no demonstrable obstruction, but which on cystography show enormously dilated and tortuous ureters, present a difficult problem. Diagnosis by cystography is easy, however, and if treated early there is some hope of improvement. At present, drainage of the ureters by inlying catheters seems to offer the best hope of improvement; for cases that have gone on for a considerable time, we have as yet no satisfactory method of treatment. An early diagnosis is here the important point.

In the treatment of these cases we see two extremes at the Children's Hospital. On the one hand is the case that comes in with urinary sediment loaded with pus. The clinical picture and the history suggest that this condition has gone on for months or years. On the other hand we have the case that is admitted with the diagnosis pyelitis, and in which case the house staff would like to cystoscope on the way from the admitting room to the ward, before doing the simpler procedures that are indicated. But here is a middle sensible and rational ground and the responsibility for deciding whether the individual case needs further investigation rests with the attending family physician. Cases that

do not clear up in a reasonable time under proper medical care should have further investigation. If the diagnosis is not established by the simpler means, cystography with pyelography is now comparatively safe and easy and will often yield reliable information for diagnosis and treatment.

SECRETARY GARLAND: The paper is now open for general discussion. Will discussers please remember to give their names and town or city plainly. The discussion is limited to five minutes for each speaker. I am sure there must be some questions to ask or additional information to add. Do you care to say anything, Dr. Morse?

DR. MORSE: The only thing that I have to say is, perhaps, in my rôle of historian. It hardly seems possible that about 1900, at a meeting of the American Pediatric Society, I was most severely criticised by Dr. Jacobi and Dr. Holt because I had catheterized some babies.

SECRETARY GARLAND: Is there any further discussion? Dr. Sylvester?

DR. PHILIP H. SYLVESTER: There are two things I would like to emphasize just a bit. I am sorry Dr. Smith did not emphasize them more—that is the varying clinical manifestations in the acute case. In the last year one of our most eminent surgeons operated on three cases for me, of which all showed acute abdominal symptoms suggesting peritonitis.

The symptoms were unmistakable. The surgeon's attitude was that he did not dare *not* operate. No pathology was shown in the abdomen. The next day following operation one child showed pus in the urine in large amounts and the following day two others did. They had a very acute form of infection of the kidney and fortunately cleared up.

Another symptom which struck me as being very remarkable and which has only occurred twice in my own personal experience, was where babies were sent in with the diagnosis of meningitis. Both had stiff neck, stiff back, high fever, and were dull mentally, but the only real sign that might be interpreted as meningeal was increased knee jerks. Both these children had very acutely tender lumbar muscles and eventually showed evidence of severe kidney infection.

DR. GEORGE C. KING: Dr. Smith in the discussion of the acute type of pyelitis did not comment on the proportion of cases caused by infection. He said that some of them were caused by upper respiratory infection and some by gastro-intestinal infection. Some of us, I am sure, have a very definite feeling as to what proportion of cases are due to upper respiratory infection. I personally believe that approximately 90 per cent. of the cases are due to upper respiratory and 10 per cent. to gastro-intestinal infection. I want to emphasize very definitely the statement that he made, that in the majority of these cases there is a tendency to become chronic. These chronic cases may be eliminated by preventing respiratory infection by the early removal of tonsils and adenoids; because in most of these cases the onset can be definitely traced to infection of the nose and throat.

SECRETARY GARLAND: Is there any further discussion?

DR. DAVID B. STEARNS: May I ask Dr. Lanman if it is possible to take a picture of the urinary tract when doing a cystogram, without always following the cystoscopic procedure, by just reversing the child and letting the fluid run down into the ureters,—and so taking a fairly satisfactory picture of the kidney pelvis and ureters; particularly when reflux is present?

DR. THOMAS H. LANMAN: The taking of a cystogram is extremely easy and is done in the method you describe. About 100 c.c. of sodium iodide 12% is injected into the bladder. The child is tipped up with head lower than the feet and in those cases where there is incompetence of the ureterovesical valves there is a reflux up both ureters. The x-ray film is taken after the child has been in the Trendelenburg position for a few minutes. In many cases you get a better pyelogram than by the retrograde method with the use of ureteral catheters. It is simple to do and will establish the diagnosis in a great many of the cases especially in the pyurias of infancy. I have in mind especially the megalo-ureters for which there seems to be no demonstrable cause.

SECRETARY GARLAND: Is there any further discussion? Do you want to add anything Dr. Smith?

DR. SMITH: I think not, except to say that I am very glad of this discussion with reference to symptomatology and clinical cases. I intentionally said practically nothing about that, because it represents the phase of the subject which is most clearly understood. The facts that it seems to me important to bear in mind are first the actual pathological condition which we have until recently entirely misunderstood; and also that we must not be content to give these children large doses of urinary antiseptics without considering at least some actual obstructive or other basis as the cause of pyuria rather than simple infection.

SECRETARY GARLAND: The next paper on the program is by Dr. Warren R. Sisson of Boston.

THE COMMON COLD AND ITS SEQUELAE IN INFANTS AND CHILDREN*

BY WARREN R. SISSON, M.D.†

UPPER respiratory diseases, notably the common cold and its sequelae, especially as they occur in the early decades of life, present alike to the laboratory investigator and the clinician a medical problem of great importance. It seems opportune on occasions, such as this milestone of our medical era, not only to present the achievements which have been added to our armamentarium but to assay problems which, although commonplace, should be given further thought. As has recently been stated[1], "the more thorough study of this disease, the common cold, begins to indicate that perhaps it may be the keystone of that complex structure of ills, the etiological agents of which gain entrance to the body by way of the upper respiratory tract". It is the purpose of this paper to present a general survey or analysis of the disease denoted as a common cold with special reference to its etiology, prevalence, complications and treatment.

A definition of the term "common cold" hardly seems necessary. Dorland defines it as "a catarrhal or other disorder of the respiratory tract, sometimes caused by exposure to cold and wet". It is interesting that the term is rarely used in the classification of diseases in our hospitals. The disease as here discussed is looked upon as a clinical entity having symptoms and a clinical course which are well defined. It is an acute disease primarily involving the mucous membranes of the upper respiratory tract. Because of its acute nature in man it does not lend itself to pathological study, but suggests a process inflammatory in nature. The initial manifestations are usually confined to the mucous membranes of the nose and pharynx. The disease as it occurs in children is commonly associated with a slight elevation of temperature—100° to 102°—and subjective symptoms of lassitude, malaise and anorexia of a mild character. There also may be initial symptoms of vomiting and diarrhoea and a slight cough. It is frequently difficult to differentiate the symptoms of the primary disease from those of its sequelae. The course of the disease is generally from two to three days; its incubation period from twenty-four to forty-eight hours.

There are a number of other conditions that present symptoms, especially in the early stages, similar to the common cold. Among these may be mentioned measles, tonsillitis, influenza, septic sore throat, scarlet fever, reactions of an allergic nature and exanthem subitum or roseola, the causes and courses of which are in most instances recognized. Exanthem subitum, a disease generally occurring in the latter part of the first year is frequently incorrectly diagnosed as a common cold and later as measles. The presence of a leukopenia, a marked hyperpyrexia and exanthem as a late manifestation, enables one to distinguish this condition.

The common cold and its sequelae form one of the most common medical conditions which the physician is asked to treat. It is difficult from available statistics to state definitely its exact incidence among infants and children. It has been stated that an adult has an average of two colds a year and that respiratory diseases form one of the chief causes of economic loss. The incidence of colds among various ages undoubtedly varies greatly. Statistics are not available for the neonatal period; however, this disease and its sequelae are relatively infrequent at this age. In a large obstetrical hospital we rarely encounter a common cold in an infant and in general the common complications are of a mild character. For instance, at the Boston Lying-In Hospital in the past fifteen years only rarely has a diagnosis of bronchial pneumonia been made during the first two or three weeks of life. This fact is interesting in the light of the work of Kneeland[1] who studied the basic flora of infants and found that the upper respiratory tract was sterile at birth and that during the first two weeks the potential pathogens were absent and not until the eighth month was the flora comparable to that of the adult. He was unable with ordinary cultural methods to note a specific bacteria as an incitant for the first colds of infancy.

The incidence of colds gradually increases until the school age when it apparently reaches its peak. In the public schools of Newton, Massachusetts, with a total enrollment of about 7000 it was found from a study by the Metropolitan Life Insurance Company[2] that the chief cause for absence in the elementary grades from the months of November to May inclusive, was the "common cold". This varied from 11.8 to 23.5% of the total number of school days each month. In a study by Evans[3] of the causes of absence in the Elementary School of the University of Chicago during eight school years, it was found that respiratory diseases which included common colds, laryngitis and bronchitis caused more absences than other conditions combined. The average duration of the so-called respiratory disease was less than three days. The United States Public Health Service[4] made a very careful epidemiological study of minor respiratory diseases among 775 families of medical officers and faculties of medical schools for a period

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of one year. It was found that more than half of all the respiratory diseases reported were common colds. Furthermore, the incidence of colds was greatest during the first four years, next between the ages of five and nine, and in general diminished with advancing age. Such data obviously do not give us an accurate conception of the incidence of colds. Our conclusion must remain somewhat impressionistic for the present. We believe, however, that the common cold and its sequelae are among the most common diseases of children.

An understanding of the common cold and its sequelae depends upon the recognition of its causative agent. Exhaustive studies have been made, but as yet we lack conclusive evidence of its etiology. There have been two fairly distinct conceptions of the cause of this disease. The first might be classified as the mechanical theory; the second, the infectious. The former is based upon the fact that colds most frequently occur in the wake of changes in atmospheric conditions, particularly after variations in the mean temperature. The cause of the cold is thought to be due to changes in the ionization of the atmosphere, the nature of which is not yet fully understood. The mechanical effect of irritating the mucous membranes by exposure to cold air or by changes in humidity has been considered of fundamental importance as an etiological agent, but experiments to reproduce colds by these methods have in general been unsuccessful. The mechanical theory is further suggested by the reaction of dust and substances which cause symptoms of an allergic nature, oftentimes not unlike those of a cold.

The second, or infectious theory of the cause of colds has received attention and more acceptance recently. This conception would lead us to believe that a cold is probably a distinct clinical entity, a contagious disease caused by a specific organism. The first studies were made in the attempt to identify organisms of the basal flora of the nose and throat, such as the staphylococci, the Pfeiffer organism, and the various streptococci as the specific cause of colds. These attempts were unsuccessful. "It became apparent," as stated by Kneeland[1], "that many of the bacteria formerly thought to be responsible for the production of colds might occur as seemingly harmless inhabitants of the throat of healthy adults". Shibley, Hanger and Dochez[5] studied the normal bacterial flora of thirteen individuals for a period from five to nine months and made observations of changes occurring in the course of colds and throat infections appearing in the group. They conclude that "no bacteria were found in early cold cultures to which a causative rôle could be assigned. In the course of colds, the basic flora of the nose was often scanty in the early stages. Certain organisms were prominent in colds usually as late invaders. These included staphylococcus aureus, hemolytic streptococci and B. influenzae. There was a striking increase in the incidence of hemolytic streptococci in throat infections".

Because of the failure to identify the causative agent of the common cold by ordinary cultural methods Kruse[6] in 1914 and more recently Dochez[7] and his co-workers in New York City and Long[8] and his associates in Baltimore have attempted to produce colds by inoculating human volunteers and anthropoid apes with Berkefeld filtrates of the nasal secretions from individuals ill with natural colds. These human transmission experiments were most carefully controlled and carried out under strict quarantine precautions at various seasons of the year. They conclude, "Human colds have been successfully transmitted to apes and human volunteers in 44% of instances tried by means of filtered washings obtained from colds. Experimental upper respiratory infections similar to 'common colds' were transmitted singly and in series through two and four passages in nine out of fifteen persons by intranasal inoculations with bacteria free filtrates of naso-pharyngeal washings obtained from individuals ill with natural colds." The conclusion is reached by these authors that the incitant of the common cold is a filterable virus. Further investigations will be necessary to confirm this conclusion—the evidence thus far brought forward strongly suggests that the common cold is caused by a specific organism, possibly a submicroscopic virus.

There are certain factors which may be looked upon as contributory causes of the contagious cold and its sequelae. Of these, first, may be mentioned temperature. It is definitely recognized that colds have a seasonal incidence and occur much more frequently during the fall, winter and early spring months. The peaks are recorded in January, September and November, as noted by Townsend and Sydenstricker[4]. This is shown by the fact that the death rate per thousand live births is about 50 during July and August and reaches about 80 in February and March. As stated by Yaglou[9], "Since 1927 the winter peak of mortality of respiratory diseases is the dominant feature of the mortality curve. Smillie[10] also showed in a study of respiratory diseases in the Virgin Islands that there was a definite increase in colds after certain variations in the mean temperature. From such data and from the personal experience of practicing physicians the conclusion may be drawn that changes in temperature play an important causative rôle especially among children.

Other factors that should be mentioned are humidity, dietary deficiencies, and finally exposure. That humidity per se acts as more than a contributory factor seems questionable. Blackfan and Yaglou in a personal communication note that the incidence of respiratory diseases has been greatly reduced in the premature wards of the Children's Hospital where humidity conditions have been carefully regulated. It seems probable that the nursing technique,

strict isolation and dietary régime have also played important rôles in this experiment. There is little evidence that children in homes where humidity conditions are artificially regulated have a lower incidence of colds. Although chilling from cold air or water is commonly looked upon as an important factor in inducing colds, experiments have been unsuccessful in producing colds in this way. Admiral Byrd in a personal communication states that in his polar explorations members of his party did not contract colds even after severe exposure. Clinical experience, however, seems to warrant the conclusion that complications in children are more frequent and serious following certain exposure. Although modern research and clinical experience strongly suggest that deficiencies in diet may predispose children to respiratory diseases, this factor can at best be looked upon as playing only a contributory rôle.

The common cold would hardly be worthy of the extensive investigation of its etiology and the contributory factors for its inception if the disease were not complicated by other infections which so often cause long periods of illness and many times death especially among children. A cold as has already been pointed out, is a relatively innocent disease in itself, never causing death, but its sequelae constitute a large part of our medical problems. As has been mentioned, it is not unlike measles, a disease that is innocent enough in itself, but that not infrequently is associated with serious complications. Laboratory studies of Dochez and others confirm in a most suggestive way the tendency of colds to be the precursor of other infections. It has been noted that directly following the inception of a cold, the normal basic nasal and pharyngeal flora changes to one associated with certain pathogens such as hemolytic streptococci, pneumococci and Pfeiffer bacilli which are the organisms that are known to be associated with the complications of colds. Common among these diseases in children are pharyngitis, tonsillitis, otitis media, adenitis, mastoiditis, sinusitis, possibly pyelitis, bronchitis, pneumonia, and appendicitis. If the histories of these conditions are carefully scrutinized it will be found very frequently that an acute cold antedated the disease and furthermore, that other members of the family had a similar complaint. If the conclusion that the cause of a common cold is a filterable virus is tenable, it may be assumed that this organism is not only the incitant of a disease but like the virus of measles also renders the host more susceptible to the invasion and growth of organisms causing serious or fatal conditions.

In addition to the complications of upper respiratory infections above mentioned, there is one which has been more clearly recognized in the past years and deserves consideration; namely, disturbance of nutrition, notably in infants. Marriott and others have shown that of fundamental importance is the recognition and treatment of mastoiditis in infants in order to correct malnutrition. There is also a group of nutritional cases, both in premature and in full-term infants, that shows no demonstrable pathology of the mastoid or sinuses. These infants lose weight as is usual after the initial cold. Following this there may be a gain but there then ensues a downward trend of the weight curve in spite of all dietary régimes until a severe state of malnutrition is reached. In these cases there is generally a leukocytosis from 20,000 to 40,000, and the roentgenological study generally shows the presence of an advancing infection of the hilus and bronchi. It is not always possible to elicit a history of a cold in all cases of this type because of the mild nature of the infection in infants. That a cold preceded the later infection seems probable in many instances. The conception that all nutritional disorders in infants are caused by common colds and subsequent respiratory infections is, of course, not tenable. In many instances because of a faulty dietary régime, the soil is made fertile for infection. It is believed, however, that a certain group of so-called feeding problems are directly caused by these infections and are not due primarily to intolerance to specific foods.

The treatment of the common cold and its complications remains essentially an uncontrolled medical problem. This phase of the subject lacks carefully controlled clinical and experimental data. Every physician has his own theories and medical procedures for the treatment of colds. This statement in itself evidences our chaotic and unsatisfactory knowledge of the subject. Various therapeutic methods have been employed; various drugs such as alkalis, salicylates and others have been given enterically without definite beneficial effects. Numerous drugs have been administered with the hope of sterilizing the involved mucous membranes or at least of reducing the pathogenic bacteria of the nasal and throat structures. Examples of these drugs are organic silver salts, mercurochrome, hexylresorcinol and the like. It seems questionable whether colds have been cured or complications lessened by the use of this method of treatment. It is apparent, however, that there exist certain therapeutic measures which although not curative are palliative. These have a very definite therapeutic value. In this connection attention is called to the danger encountered from the continued nasal administration of substances such as liquid albolene, especially in young infants, as this is found frequently in the bronchi in lethal cases.

The value of vaccines in the treatment of colds apparently has not been fully established. Studies available on this phase of the subject still lack satisfactory controls. It seems reasonable to expect that further progress will be made in this direction.

Reference should be made to the treatment of

upper respiratory infections by ultraviolet light and cod liver oil. To date neither has been shown to prevent or exert a favorable effect upon colds and their sequelae.

Surgical methods for the treatment of colds and their complications is a common procedure, possibly too common. Kaiser[11] has studied the effects of tonsillectomy and adenoidectomy on 4400 controlled children. The effect upon colds was characterized as beneficial, but certainly this was not striking. Colds occurred in 22% of operated cases and in 31% of the controls. Sore throats and cervical adenitis showed a somewhat lowered incidence in the tonsillectomized children. Otitis media showed a difference of but 4% in favor of the operated cases. Bronchitis, pneumonia and sinusitis were unfavorably influenced. This investigation leads us to believe that possibly the benefits of tonsillectomy and adenoidectomy upon colds and their sequelae have been grossly overemphasized.

The prevention of colds by the principles of isolation offers today one of the most intelligent and logical methods of the control of this disease and its complications. The recent experimental studies on the etiology of the common cold give evidence to the belief that we are dealing with a contagious disease. Human beings and apes in contact with people with colds, contracted the disease. Those isolated generally have remained well. The instance of respiratory diseases in premature infants living in specially constructed wards has apparently lowered the mortality about 50 per cent. It is thought that isolation has contributed greatly. Clinical experience suggests further that infants and children in small families living in spacious surroundings show a lowered incidence of colds and upper respiratory infections. The difficulty of isolation in private practice is recognized, but its importance cannot be overestimated, especially among young children, as the best method of controlling the common cold and its sequelae.

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SECRETARY GARLAND: Before going on with the discussion of Dr. Sisson's paper I wish to announce that at the close of the regular program of the Section Mr. Snyder of the National Lamp Works will show in this room a film prepared in accordance with the request of the Council on Physiotherapy giving illustrations of some of the values of artificial sunlight.

The discussion of Dr. Sisson's paper will be opened by Dr. Gordon Berry of Worcester. Dr. Berry.

DR. GORDON BERRY: The speaker has dignified the "common cold". He has placed the disease where it belongs. It cannot win our love but it certainly deserves our respect. If we could eradicate this apparently insignificant nuisance, employers would readjust their labor schedules, death rates would change overnight, insurance companies would realign their entire program and many of us doctors would be left with little or nothing to do.

It seems so innocent. The speaker has shown that the filterable virus theory seems the best. Then the existing cold infection either weakens the tissues or stimulates the secondary organisms, and a severe complication supervenes. He has briefly noted the similarity to allergic phases. The similarity is very noticeable at times. And it has logic. If a retained secretion in a maxillary sinus can make active a dormant asthma, why cannot an acute congestive rhinitis with its tissue fluid stasis and retention, stir up an undiscovered allergy? You gentlemen are experts on diet. You have seen repeated colds cease with the elimination from the food of milk in one, egg in another, chocolate candy in a third; or by the addition of vegetables in one, cod-liver oil in another. Causes and symptoms are interchangeable and confused but undoubtedly the careful pediatrician of the future will do much to discover the key that will unravel the puzzle.

My experience and that of my fellow laryngologists would agree with the quoted experience of Kaiser's 44,000 cases, only in part. The removal of tonsils does not prevent colds. But that is as far as I can go with him. Dr. Sisson has pointed out the reason. If we accept the filterable virus theory, a cold will attack a tonsillectomized child just as easily as one who still has his tonsils, unless the removal of the tonsils has eliminated a chronic infectious and debilitating focus. In the latter case one would expect the resulting sturdier child to fight off any disease better. Some catch colds always from others. These are the contact forms. Some catch colds only as the result of exposure or dietetic or intestinal upsets. These seem to be carrying the source of their own recurring colds and for such, a removal of the infected tonsils and adenoids often proves a relative cure. This same author suggests this when he refers to cervical adenitis forms as benefiting from tonsillectomy. As to the statement concerning chronic suppurative otitis media, if it is of a tubo-tympanic type, adenotonsillectomy in either child or adult will so often clear the otorrhea without any other form of treatment, as to negative Kaiser's claim against such benefits after five years of age.

One form that is less likely to gain from adenotonsillectomy is the one where the posterior

pharyngeal wall shows pre-operative excessive granular or lymphoid hypertrophy. When the adenoids and tonsils have been removed, this hypertrophy often becomes more active and even crypts may form here and on the infra tonsils and on the lingual tonsils. The post-operative end may be no better than the beginning. Tonsils lend themselves to shrinkage by deep x-ray therapy and sometimes to a controlled diet. Rarely there seems to be some connection with the thyroid and its activity. We cannot settle the tonsil controversy here but I feel sure that careful supervision of the hygiene and diet by a skilled pediatrician will make it unnecessary to do many an adenotonsillectomy that now seems imperative.

Exposure has been advanced and also denied as a causative factor in cold. Until we know the real cause better, it becomes difficult to know the true place that exposure occupies, but I venture that none will deny that with a cold once started, the secondary phases will be much more likely to get hold if there is exposure. I cannot emphasize this too emphatically. 1. An acute ear is opened, drained and clears. The baby feels so well and the sun seems so nice and warm. The mother places it in the baby carriage out of the wind and in the sun for only half an hour. That night its temperature shoots up and the ear has to be reopened. 2. A girl has had an acute cold for one week. It is clearing. The family goes for a two-hour automobile ride on a Sunday afternoon. The next day this same girl who was sitting on the right front seat with the window open, has an acute right antrum infection. 3. Even a similarly sick doctor can be guilty of a hot lemonade, a Dover's powder, a heater in the bed, plenty of covers, and the windows wide open to blow icy cold air on to his sensitive nasal tissues which will swell shut by three in the morning and mouth breathing supervenes to aggravate the picture. 4. Or a lad has a clearing nasal cold and goes in swimming with his fellows at a summer camp. He does his share of diving, comes out to dry off in the sun and wind, goes in again. After lowering his body temperature and flushing his paranasal sinuses and eustachian tubes (for the middle ear is but another nasal sinus) with his own infected nasal secretions, is it any wonder that the boy has an acute frontal sinus or a middle ear or even a mastoid infection? Consulted by the summer camps around Waterville, Maine, Dr. Frederick T. Hill became appalled at the frequency of these complications in several thousand healthy husky boys. With the coöperation of different camp physicians he kept out of the water all boys with acute colds, nasal polypi, sinus infections, hay-fever, and running ears. Most of these severe acute complications ceased. The moral is evident. Some of the most trying suppurative sinus cases we have to deal with come in the fall after summer camp life, or in the winter from tank swimming.

I wish there were time to dwell on some of the more serious otolaryngological sequelae in children. A few may be listed: 1. An acute ethmoiditis where the only symptoms are a high temperature, a headache, nasal congestion and perhaps a photophobia or even partial blindness; 2. the acute exanthemata where I am convinced we could often avoid the tragedy of severe deafness if unrecognized middle ear suppurations were promptly discovered and adequately treated; 3. an acute mastoiditis with abundant otorrhea which seems to offer adequate drainage but requires more if the high temperature and threatened meningitis in one type, or the watery stools, vomiting and emaciation in another type, are to be controlled; 4. a retropharyngeal abscess where the diagnosis is so readily made and so often missed; 5. an orbital abscess of ethmoidal origin where failure to interfere promptly and radically may mean meningitis and death, as it did for a little girl patient of nine a month ago. Such a hasty enumeration recalls yet more vividly the seriousness of our problem and lends yet added incentive to our efforts to discover the cause and apply the remedy for this so-called "common cold".

The essayist has touched upon the therapy. I shall enlarge upon two points. In some cases, adrenalin gives a profound vasomotor reaction and for this reason ephedrine is preferred. The 1% compound inhalant has proven irritating in my experience and a dilution with three or more parts of liquid petrolatum has been more effective. It can be used early and often, during the acute stage, and the resulting free aeration and drainage of the nasal passages will often abort a beginning troublesome complication. Only two or three drops on each side are necessary but they should reach the upper nares.

The second point is the avoidance of local chilling. This deserves emphasis even though some fresh-air exponents will not agree. I am a hearty believer in fresh air but where we are dealing with an acute rhinitis or sinusitis, inspired air should be warm. The sleeping room had best be kept at 60°, certainly not below 50°. The nasal tissues rebel if they are chilled and much ground can be lost by such abuse.

In closing let me reiterate that we owe a real debt to Dr. Sisson for so ably bringing to our attention the grave seriousness of the common cold.

SECRETARY GARLAND: The discussion will be continued by Dr. Henry E. Utter of Providence.

DR. HENRY E. UTTER: This has been a very enlightening paper. The "cold" produces our worst problem in winter. Some years ago—fifteen or so—we had two bothersome conditions during the course of the year: one, our summer

diarrheas, and the other our respiratory infections in winter. The summer diarrhea has gone, thanks to the men who have done so much to take care of our milk question and to our modern methods of feeding; but we still have the other problem of respiratory disease.

This whole subject is most interesting and Dr. Sisson's paper has been very stimulating and has been an excellent résumé of the whole subject. One thing I would like to speak about, namely, the communicability of colds, and with that communicability the casual way in which the problem is treated. We have during the course of the winter a certain number of children with diphtheria and a certain number with scarlet fever; these children are promptly isolated. We have children with measles and with whooping cough; these children are promptly isolated. The average child with a cold is not isolated. The person living in the house who communicates the cold—the nurse, the mother or another child—is treated in a very casual manner. The nurse says, "What she has is nothing." The mother says, "What she has is merely a throat irritation," and the father is certain to blame his respiratory trouble to excessive smoking. In other words, the problem is treated too casually. The family has not the fear of the common cold which it has of scarlet fever or diphtheria. It seems to me that one of the greatest objectives is to instill into our families and our homes the knowledge of the seriousness of colds. For after all, in the course of the practice of the pediatrician in the winter how many children does he see with scarlet fever, how many with diphtheria, how many with measles and how many with whooping cough ending fatally? If he does attend a child with diphtheria, with scarlet fever, with measles or whooping cough, complicated by respiratory symptoms how often it is that the common cold contracted from some careless member of the family, is the direct cause of the mastoid disease, bronchitis, or the bronchopneumonia which produces the fatal result.

It seems to me also that the most important part of isolation is that it must be done quickly. Where a discharge from the nose is the predominant early feature the child must be isolated quickly and a valuable thing in isolation is to keep the child in bed for 24 hours. When the coughing stage of a "cold" has been reached isolation is valueless.

There is another point in regard to the communicability of the disease which I think is often not considered, and that is the point which rests upon the variability of the manifestations of a cold according to various seasons. We all from year to year marvel at the various symptoms produced by respiratory disease. In September and October we know that we are going to see many children with vomiting or diarrhea complicating an upper respiratory infection. In November and December we are going to see colds with bronchitis; in January and February colds with otitis media, mastoid disease, pneumonia and accompanying complications. We know that these complications are the conditions that give us trouble in the winter and the things which give us our mortality.

If these symptoms are so variable, then our régime as regards isolation must be emphasized and made more important according to the type of symptoms predominant at the time. The "colds" of January, February and March, with their more serious manifestations, deserve early isolation.

It seems to me that if we could early in the fall educate every family we come in contact with to isolate the first child that comes down with a cold and put him to bed, then we have done a great service and perhaps in the future our respiratory diseases of winter will go where our diarrheal diseases of the summer have gone.

Dr. Edwin H. Place: Mr. Chairman, members: I think this is an opportune time on account of the weather to recall what Mark Twain was quoted as saying—that everybody kicked a great deal about it but nobody did anything about it. That is the great trouble about colds. We all appreciate that they are causing a lot of trouble in childhood and later, but we do not know what to do about it. I think this paper and discussion ought to be of value in focalizing our attention upon the problem and leading possibly, we hope, to some efforts to control it.

I never have discussed with my fellow physicians colds without finding—and I think you will find—that we are probably confusing a great many things under the term "colds". The diagnosis is certainly very difficult. Unfortunately I was called away during the paper and missed a great deal of it, but I thought Dr. Sisson presented the nature of a cold very clearly—an acute catarrhal limited disease running only two or three days. But in talking about a cold we certainly do add all the different secondary infections which follow it and mix them all up with the cold and often do not know and do not even try to distinguish which are which, but confuse them all with the primary cold.

Personally I was glad to hear Dr. Utter's view of intestinal grippe. I never have been able to convince myself that influenza can be classified under an intestinal form unless it has definite respiratory symptoms. We all know that many infections may cause gastrointestinal symptoms, but the discussion of intestinal grippe has always left me very uncertain. One of the older physicians, the late Dr. Henry Broughton, when I said to him that I had never seen a case that I could class as intestinal influenza, said the trouble was that I

had not seen the epidemic of 1891, which included many cases of intestinal type. In our last epidemic, when I saw hundreds and hundreds of cases, I did not see a single case that I could class as intestinal. I would not accept the diagnosis of influenza unless there were definite respiratory infection occurring with the gastro-enteric symptoms.

I think Dr. Utter's point of isolation is the only method that we have at present with which to attack the problem and I am afraid it is absolutely useless—useless not only because you cannot get human beings to appreciate the problem in sufficient numbers and attend to it, but because it is almost impossible to isolate before infection occurs. We have never controlled any disease in that way in the history of medicine. Immunity to colds is extremely short, so that recurrent attacks occur. The only hopeful aspect I can see is that prevention may come through some increaseed knowledge of local or general immunization.

It is possible that influences not yet completely known, but at hand, such as the vitamins, environment especially as to the humidity and temperature of our rooms, local immunization of Besredka, may prove of value but I have no hope that isolation will prove of value in general control.

SECRETARY GARLAND: The paper is open for general discussion.

DR. PAUL R. WITHINGTON: Mr. Chairman, I would like to take exception to something Dr. Place said about controlling the disease. Like every other growing thing you must have the ground prepared for it and then you must have the organism there. You cannot plow a field of corn and fertilize it and get corn to grow unless you put the seed there. You cannot put corn in a field that has not been fertilized and have it grow readily. Two conditions must exist. You must have the field prepared and fertilized and the corn planted. I saw a man in the Canadian Rockies at one time who had been out two years in the mountains, sleeping out-of-doors all the time and never had a cold. He went back to the hotel and the first night he got a cold. The field might have been prepared from the chill and the cold, but the germ had not grown until he got back to the hotel. On the other hand, I believe in New York City they found that in the newer buildings which have been ventilated adequately the children have shown more colds than in the old buildings which were not ventilated. The point is this: you cannot expect a child to go from Labrador to Florida in the course of a few minutes and not be affected by it. He can go there and if there are no germs he will be all right, but if there are germs he will catch "cold" more easily. What will control colds, in my mind, more than anything else, is not keeping the rooms too hot and keeping the windows closed nights; in other words keep the temperature even.

DR. SAFFORD: I would like to say that from my own experience, whereas I agree with Dr. Place that we cannot expect to have wholesale control of colds by isolation any more than isolation has proved protective against other diseases, yet I do not think we should neglect the possible benefits of isolation in individual cases. I believe that any case of a cold should be isolated for the patient's own protection if for nothing else. We certainly know that the serious complications of colds are due to what might be called secondary invaders, and if you protect the child by isolation from the chances of infection with those secondary invaders you have done something of possible benefit to the child.

Then there is another point that I am satisfied of from my own personal experience; that is, that a cold in itself is a definite entity, although it may at times be confused with some other infection. I believe a cold, like measles, is actually contagious before the symptoms are pronounced. I believe, of course, that the danger of contagion as with measles is directly proportional to the amount of the infectious secretion which an infected individual is producing and scattering about. I think that the same thing is true with any disease. It is true with a trachoma. But there is another point. Of course these organisms which are associated with the complications of colds, presumably as secondary invaders are often distributed in the community by persons apparently well. More carriers of these organisms are found as the season advances, and I think that is one reason which is responsible for the more serious character of respiratory infections along toward the latter part of February and March. The isolation of your patient does tend to reduce chances of acquiring those organisms from other people.

SECRETARY GARLAND: I am sure this is a subject concerning which practically everyone has an opinion.

DR. D. C. DENNETT: May I ask if the meeting is open to any comment by people who are not members of the Pediatric Society?

SECRETARY GARLAND: Yes, sir, we should be glad to hear from you.

DR. DENNETT: I am a member of the Massachusetts Medical Society but not of this Section. I would like to mention a few facts about colds observed over a period of many years in the treatment of a large number of cases. I have found that the ultraviolet ray will not prevent or cure colds. In some cases it is harmful and the disease is made worse by using it. Formerly I used heliotherapy, the ultraviolet and the heat ray at the same time, as routine following whatever local treatment of the nose and throat was given. I still use the heat ray because of its comforting effect. It helps in the treatment of colds. When using the ultraviolet ray in the treatment of acute colds I found, every once in a while, that it made the patient worse, especially in cases where a tendency to kidney con-

gestion existed as manifested by urinary disturbances and transient albuminuria. Dr. Evans, in his health article in this morning's *Boston Herald,* says it has been found that the ultraviolet ray will do colds no good. Having found this out in my own practice I omitted the ultraviolet ray following the local treatment of the nose and throat.

The sulphate of atropin is the most useful remedy in the treatment of head colds. Properly used, in conjunction with the treatment of the postnasal space, with the postnasal syringe and the instillation of the indicated remedy in the form of nose drops with a dropper, profuse coryza, blocked sinuses and mouth breathing may be prevented. In acute nose colds it is better to use a dropper than a spray. A spray, as the patient or nurse uses it, may be injurious in an acute rhinitis, do more harm than good, and even prolong the disease. The fact that the proper treatment of the postnasal space, plus the use of the sulphate of atropin will, in many cases, abort a cold, I would like to have explained. I found that the postnasal space, over an area that years ago I named the triangle of fire, is the most sensitive part of the pharyngeal and postnasal mucosa in colds whether there be postnasal dripping, mucous discharge or not. The treatment of this area with the postnasal syringe will frequently reveal an acute sensitiveness that was not suspected. Frequently after one or two treatments the sensitiveness disappears, the same application no longer hurts, and then the disease is under control or aborted. Does the cold toxin invade the system more readily through this area, where lymphoid tissue is relatively less abundant, than it does through the area of the tonsillar ring? Does this account for the soreness of that area, and for the benefit done by carefully covering the whole space with a non-irritating, germicidal silver solution? In this connection it is significant that tonsillectomy does not prevent colds. Physicians should tell their patients this fact. Time and again patients have come to me downhearted and discouraged because some doctor had told them that they would not have colds after their tonsils were removed. After operation they still had colds and were discouraged. Another significant fact in connection with posttonsillectomy health is that there are more lower respiratory infections than before. Does the removal of the tonsil lymphoid tissue convert the tonsillar fossa into an area resembling the "triangle of fire" so that the cold toxin passes more readily into the system than it did when there was a lymphoid bulwark between it and the blood stream? The correct answer to these questions will help us solve the great problem of the proper treatment of colds. Removal of the adenoid, when it prevents ventilation and drainage of the middle ear through the eustachian tube, is beneficial and colds are less frequently complicated by middle ear disease after this has been done.

During a head cold, when symptoms develop pointing to the beginning of a "chest cold"—acute bronchitis—I give at once Dover's powder in 2½ grain doses for adults. At this time, as Osler said years ago and as I learned from experience before I read it in Osler's book, this is a sovereign remedy. During the course of a cold it will be found that the patient will not do well so long as the feet are cold. In fact cold feet, and unaccountable malaise, are often the first symptoms of a cold. Heat is good for a patient with a cold. Use warm socks and a hot water bottle at the feet. Draw the blood away from the congested upper respiratory membranes. I have used vaccines for myself and for my patients without much success. I have had my own tonsils removed, and, if anything, I have had more colds since than before, but I respond more quickly to treatment now than I did before tonsillectomy. I have had more bronchitis. I took the vaccine treatment under the direction of one of the best and most painstaking physicians.

Are there different types of colds caused by different toxins as there are different types of pneumonia? It has seemed to me that there are, because having treated with confidence a series of colds with the same method and same results there would come a case that did not yield to the remedies used and did not act the same.

Concerning the cause of colds a member has related the significant fact of a man exposed to all kinds of weather in the Canadian Rockies and so long as he was there and away from contacts never having colds. For years I have passed more or less time in a camp in the woods of Maine. The proprietor of the camp told me that neither he nor his family ever had colds after the hunters left in the fall until the fishermen came back in the spring, notwithstanding the fact that they were exposed to all kinds of weather with rain and snow and ice. In the spring, when the fishermen came, some for their health on account of colds, these residents themselves were infected.

Dr. Ella G. Stone: I think that a great deal of our difficulty in understanding the etiology of infections of the respiratory tract is due to the fact that the reactions of each individual to a particular organism varies according to their natural immunity, and may also vary in the same individual under different conditions.

We all know that the factors playing the most important part in such diseases, are natural or acquired immunity, the virulence of an organism and the size of the dose. Therefore in view of these shifting values, one might well suppose that a pneumococcus infection in one individual producing pneumonia, may in others be modified to an ordinary catarrhal inflammation, commonly called a "cold", and this reasoning also applied to some other organisms which usually infect the respiratory tract.

While there may be a specific cause for the "common cold", judging from past experience, I am inclined to doubt this conclusion.

It seems, therefore, that the important thing to be considered in the treatment of these infections, when not sure of the identity of the invading organism, is the natural immunity mechanism of the body, and how best to stimulate its reaction in a general way.

During the influenza epidemic I was superintendent of the Outpatient Department of the New England Hospital for Women and Children located then in the South End of Boston. One of my duties was that of caring for the dispensary patients in their homes in that district. In some families there were as many as ten children ill with influenza at the same time as well as the mother, with no one to care for them except the father and neighbors.

Being in doubt as to the specific cause of the disease I used no vaccines or serum in their treatment but directed my efforts to general stimulation, which under such conditions could best be secured by heat. To this end as soon as possible the chest and neck up to the ears of the patient was swathed in wool or cotton flannel, saturated with hot camphorated oil and renewed when absorbed or seemed indicated. Hot thin broths or milk were given every two hours. Argyrol was used in the throat and nostrils, sliced oranges when desired and aromatic extract of cascara for the bowels. No deaths occurred among these patients except one woman. She had been ill for a week with influenza before I was called to deliver her of a child, but as her illness was attributed to her pregnant condition, she had received no attention. When I arrived she was in the second stage of labor. Finding her heart was failing, I examined her heart and lungs. Both lungs were consolidated. She was delivered of a normal child but died the next day, influenza being the cause.

There is much to be said on the subject of "Infections of the Respiratory Tract," and much to be learned, and I am heartily in accord with all research work along these lines, but I believe that when these conditions confront us we should strive for stimulation of the general immunity mechanism of the body, as well as the specific, as mixed infections so often play an important rôle in these cases. If one could get the coöperation of patients who are habitually subject to the "common cold", I believe it would be well to immunize them if possible with the mixed vaccines prepared for such purposes when the autogenous is not available.

SECRETARY GARLAND: Dr. Berry, can you answer Dr. Dennett's question?

DR. BERRY: Mr. Chairman, Dr. Dennett has brought forward several interesting points. First: he advocates the use of atropin for the congestive stage of an acute cold. You gentlemen can speak with greater authority on drug therapy in children than I can. Atropin dries the secretions and thus secures shrinkage and drainage of the nasal and paranasal passages. Some of you use atropin for a lung congestion, with similar intent; while others will give iodide or ammonium chloride in order to increase the secretions and thus wash the infection away. I have felt that there is a disadvantage in parching the nasal mucous membranes, for ciliary action is an important phase of curative processes here as well as in the bronchi, and the cilia need moisture to work effectively. I therefore seek to gain enough local shrinkage to permit drainage rather than stasis; otherwise I welcome a free nasal discharge during an acute rhinitis. Secondly: he advises the use of nasal sprays. These certainly have their use. It is however interesting to note that rhinologists use sprays and douches far less than they did. These tend to wet the tissues and make them boggy on the one hand, and they wash off nature's protecting mucus on the other. Thirdly: he questions the wisdom of a tonsillectomy done in his own case. Without doubt, we find needless or unprofitable operative work in this field as in every field of surgery. I think this body will, however, find the removal of tonsils to be increasingly valuable in its pediatric experience. Stress should rather be placed on a careful selection of the cases to be operated upon. Possibly the patient's sister or playmate gained, so the insistent mother wants her boy's tonsils out, when he really needs a change in his diet or postural training or better hygienic surroundings. Fourthly: the periodicity of colds has been noted by several. This point should be stressed. There are two general "cold" groups in my experience. One comes from body chilling or dietetic indiscretion and starts from some focus of infection in the patient. The other is the epidemic form that comes in cycles. The first group can be helped or cured by the treatment or removal of the focus of infection. The second form calls for prompt isolation. I think we all endorse (with the writer of this illuminating paper) the consideration of the "common cold" as a social and economic menace deserving our serious and energetic attention.

SECRETARY GARLAND: Do you want to add anything, Dr. Sisson?

DR. SISSON: I have been much interested in the discussion of this subject which we know so little about. I feel that the paper has not been completely discussed because I have not heard anything from Dr. Morse; otherwise I should be perfectly happy.

SECRETARY GARLAND: I am sure the discussion could easily continue on through the afternoon, but the clock will not wait for us and I am afraid we will have to entertain a motion to adjourn.

DR. MORSE: I move we adjourn.

(The motion prevailed and the meeting was thereupon declared adjourned.)

MENTAL HYGIENE CLINICS IN GENERAL HOSPITALS*

BY KENNETH J. TILLOTSON, M.D.†

ONE of the outstanding developments of the mental hygiene movement is the attention it has attracted to psychiatry in general hospitals. On the whole, interest in psychiatry has greatly increased since the late war, and the general hospital aspect of psychiatry, i.e., the development of mental hygiene clinics or psychiatric clinics in general hospitals, together in some instances with the establishment of a psychiatric unit in connection with the general hospital wards or buildings so that the work of the psychiatric hospital can virtually be carried on, has worked out quite satisfactorily and successfully in many medical centers where they do not have the full services of a large and completely equipped psychopathic hospital such as we have here in the Boston Psychopathic Hospital.

The work of the psychopathic hospital and the psychopathic unit in general hospitals has been outlined by numerous writers. Perhaps the most complete and effective summary was given to us last May in a paper by Professor Campbell entitled, "The Work of the Psychopathic Hospital." In this article Professor Campbell states that "the psychopathic hospital or the psychopathic department of the general hospital places the treatment of mental disorders on the same objective and rational basis as that of the ordinary surgical and medical diseases".

Now, concerning the needs for psychiatric departments and mental hygiene clinics in general hospitals much has been written. Even a brief search of the literature on the subject discloses an already extensive bibliography, and it might well seem as though little remained to be said; but, to quote from an article by George K. Pratt, "Few, indeed, are the general hospitals, whether metropolitan or rural, that provide at all, to say nothing of adequately, for one important class of patients, the sufferers from nervous and mental illness."

Today no well-informed person believes the problem of mental ill-health to be merely one of insanity. In the general hospital a large number of persons suffering from various types of mental and nervous disability may be expected to recover shortly provided appropriate treatment is rendered with promptness and efficiency. Lacking these two conditions, chronicity and extended institutional care are the usual aftermaths. It is among these patients, the acute and incipient cases of mental illness, that the mental hygiene clinic, staffed as it is with psychiatrists, psychologists and the psychiatric social service workers, may be expected to exert its usefulness.

The need for earlier recognition and earlier treatment of psychoneurotic mechanisms is being recognized both by the lay mind and by the internist and the surgeon as well as by the psychiatrist, not only as a general diagnostic need, but also as a means by which prolonged hospital residence may be reduced to the minimum. The complex civilization of today demands a greater degree of adjustment to the problems of everyday life than ever before, regardless of whether those problems are industrial, marital or religious. Daily the casualties of "merely living" in this constantly changing world, where mental complexes and conflicts abound and increase almost without measure, appear at the doors of the general hospital, often so cloaked in the guise of apparent organic alteration that the underlying personality difficulty and emotional reactions pass unrecognized.

It is important, also, in dealing with the psychoneurotic groups, to emphasize the time element. The time spent with these patients is an important factor in diagnosis and in treatment. Failure to give sufficient time to understand adequately and in a sympathetic manner the emotional conflicts, whether they are secondary to underlying personality difficulties or are representative of a misfit in the occupational world, is chiefly to blame for our overlooking the daily problems of life. Borderline psychoneurotic mechanisms represent a field of mental hygiene as yet, for the most part, unexplored by most general hospitals. Emotional conflicts, infantile responses and behavior problems and unsatisfied sex strivings are seen in the general hospital masquerading as hyperthyroidism, or cardiac disease, and last but not least, as pelvic disease. Depressive mechanisms are often erroneously looked on as psychoneurotic mechanisms. When such mechanisms are overlooked, fixation of symptoms often results either through ill-advised operative procedures or by too prolonged or too enthusiastic medical treatment. Overcoming the psychoneurotic mechanisms is dependent on the time element, on humane understanding of social problems, and on tact used in changing life's behavior patterns, as well as on a frank recognition of the limitations of the lay mind in understanding the problems involved.

In a very brief article in the January-February 1931 number of the *Massachusetts Mental Hygiene Bulletin*, the writer outlined the general scheme and plan of the functioning of the Mental Hygiene Clinic in the Out-patient Department of the Massachusetts General Hospital. This Clinic had its inception last September and has progressed steadily with the additions of personnel to meet the increasing demands that are insistent in a large general hospital center like the Massachusetts General.

*Read before the New England Psychiatric Society, April 21, 1931.

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Time will not permit more than the most superficial summary of the nature and extent of our work.

Following as complete a survey as possible of how other psychiatric units, mental hospital and general hospital situations or psychiatric and mental hygiene clinics have been developed, together with a careful résumé of the literature on this subject, the writer was led into the general hospital to organize, with the assistance of several able psychiatrists already in attendance at the Out-patient Department, a mental hygiene clinic and to make a close study of the psychiatric needs of the general hospital. It should be noted at this point that, unlike many psychiatric clinics starting in general hospitals that we read about in the literature, we received the enthusiastic endorsement and hearty support of the entire general hospital staff. In fact, all departments at the General Hospital have coöperated with us in an exemplary manner. This spirit and attitude has not only been of inestimable help to us, making a rather difficult task much easier, but it has made it possible to progress rather rapidly in our close study of the needs of the hospital and clinic. Because of this, also, our entire time has been devoted to the study of patients in the Out-patient Clinic or cases that have been seen in consultation throughout the various departments of the hospital.

Regarding our attempt to investigate and treat psychoneuroses and psychoses in an out-patient clinic, it would seem that our motives and procedure are very well summarized in an article by Thomas S. Good, in the *British Journal of Medical Psychology*, who, in writing on the scope of the work of the Oxford Clinic for Nervous Disorders, which opened its Out-patient Department in 1918 at the Radcliffe Infirmary and County Hospital, Oxford, says that: "The patients include people suffering from all forms of nervous and mental ailments who attend in the same waiting hall as the other medical and surgical cases. The clinic was designated the Department for Nervous Disorders for the following reasons:

(1) That mental patients would more readily attend for advice and treatment if they could do so without being singled out as mental.

(2) As the difference between the neuroses and psychoses is possibly only one of degree (the so-called borderline) it was hoped that treatment could be given and cases alleviated or even cured in the incipient stages.

(3) It was felt that in all probability friends would bring patients and others would attend of their own accord at a clinic in a general hospital, whereas they would shun attending a mental hospital because of the fancied stigma and disgrace attaching to the latter institution.

(4) It was considered essential that organic and functional nervous diseases and disorders should be investigated as a whole and that the medical man in charge of the clinic should have knowledge of all forms of mental and nervous illness.

"Further reasons for choosing the general hospital were as follows:

(1) That a general hospital is more accessible for the greater number of the inhabitants of the district than any other institution.

(2) That specialists in all branches of medical science are there available, surgeons, orthopedists, internists, roentgenologists. Therefore, a case can be referred at once to a colleague or vice versa. There is teamwork.

(3) That it is obviously the most economical method as it saves duplication of expensive apparatus.

(4) That the psychiatrist is brought into closer touch with other men of the profession to their mutual advantage.

(5) That it is an advantage for the general practitioners in the area to be able to send any patient for treatment or opinion and therefore increase their knowledge as to the diagnosis and treatment of nervous and mental diseases and disorders."

It has been interesting to us to appraise the type of clinical psychiatric material that comes to a general hospital clinic. We have not been able to make any statistical survey, but it would seem that a statement of Strecker given in his recent paper on Medical Education, regarding the types of mental illness observed by the general practitioner, offers a very good classification of the material we have studied in the general hospital:

"(a) The Neuroses.
(b) Organic disease seriously complicated by neurotic additions.
(c) The psychopathological implications of chronic organic disease.
(d) The mental aspects of convalescence.
(e) Complete or partial psychopathological problems in children.
(f) Unadulterated psychoses."

Strecker adds that he has no hesitancy in committing to paper the conservative belief that the first five of these groups make up more than 75% of the clientele of the general practitioner during the first ten years of his professional life. The percentage clearly recognized as psychiatric by physicians is, of course, smaller than this. Finally, well-defined psychoses constitute less than 5% of general practice.

In this connection it is interesting to review the experience of Thomas J. Heldt as given in an article in the *American Journal of Psychiatry*, entitled, "The Functioning of the Division of Neuropsychiatry in a General Hospital", who states that "August 1, 1923 marks the beginning of our first direct efforts in developing a divison of neuropsychiatry in a general hospi-

tal. In this hospital, with a bed capacity of 450, we judged it best to review unostentatiously the hospital needs and to fit unobtrusively into its existing organization, this not because psychiatry need offer any apology for its presence in a general hospital nor for its methods of examination, study or treatment, but because there is still altogether too much evidence of those traditional barriers that lie in segregation and institutionalization which have been historically conditioned." Heldt states that any general hospital worthy of the name should consider itself able to care for certain types of nervous and mental cases, and should proceed to make provisions to that end. Isolation and segregation of psychiatric patients in the general hospital is a matter deserving of the closest study.

In contemplating the establishment and the maintenance of a department of psychiatry in a general hospital, we judge that no preconceived plan of any proposition can be set down in a given general hospital setting and be expected to function as such. The psychiatrist, of all medical men, knows how important it is to individualize patients and their situations. So, in introducing and developing psychiatry in a general hospital, each general hospital setting is different and must be thoroughly studied, individualized, and evaluated. Upon the basis of such evaluation must the plan of approach and development be carried out with anticipation of, and provisions for, flexibility and elasticity of application. In this regard, also, it is our experience that the range of case or diversity of reaction type, whether psychoneurosis or psychosis, cannot be increased any faster than the development of associated understanding and experience on the part of the entire professional and administrative staff of the general hospital. Just as personalization of patient promotes success in treatment, and impersonalization of patient makes for failure, just so with the general hospital and psychiatry. Gradual growth and cultivation of the understanding of the professional and the administrative personnel insures sympathetic coöperation and progress—personalization. Sudden installation of a detailed, preconceived plan invites quizzical attitude, misunderstanding, and that same standoffish isolation that "matters of the mentally ill" have always been awarded—impersonalization.

Heldt continues by saying that the establishment of a psychiatric in-patient section or unit of a general hospital is naturally a greater problem than the successful maintenance of a psychiatric out-patient clinic. The latter is now in common service in some general hospitals throughout this country. In the out-patient clinic patients report periodically for observation, examination and treatment. By way of general summary, it is stated by Heldt that from 10 to 20% of all patients admitted to the general hospital will be found to present conditions and problems that are primarily psychiatric, regardless of the patient's complaint or diagnostic impression on first contact. If mention be made as well of all cases showing secondary and minor disturbances of the nervous organization, then the percentage promptly rises to 30% and even higher. Heldt concludes his article by stating that: "(1) The establishment of a neuropsychiatric division in a general hospital should be a matter of gradual growth rather than a sudden installation. (2) All types of neuropsychiatric patients can be managed in a general hospital with adequate facilities and understanding personnel. (3) The development of divisions of neuropsychiatry in general hospitals is a noteworthy step forward in the care of nervous and mental patients and should be further fostered and encouraged. (4) General hospitals, by adding a division of neuropsychiatry to their organization will do much to relieve the state institutions."

In conclusion, it would seem, from a close study of the cases which we have seen in the out-patient department and on the wards and in the various departments of the Massachusetts General Hospital, that:

(1) A psychiatric or mental hygiene clinic is essential.

(2) A considerable number of psychoneuroses and psychoses as well as child guidance problems present themselves *per se* in the early stages at the General Hospital.

(3) Except in emergencies, no eccentric or neurotic or alcoholic individual should be submitted to an operation or placed on a prolonged course of treatment without having had a psychiatric consultation.

(4) Since the Massachusetts General Hospital is a large teaching center, it is apparent that medical students will learn much in psychiatry and greatly augment their medical training by a course in the psychiatric aspect of general hospital practice.

(5) A period of study in a psychopathic or mental hospital should be a part of all hospital internships.

(6) A large number of the general hospital patients with definite medical and surgical conditions have secondary mental conditions which can best be handled from the psychiatric standpoint. Therefore, the psychiatrist should be an indispensable aid to the internist and surgeon.

(7) The bringing together of psychiatry and other branches of medicine is accomplished through the operation of a mental hygiene clinic at the general hospital. The esprit-de-corps given the staff of the McLean Hospital through more intimate contacts with the large General Hospital staff has already proved of inestimable value.

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THE BORDERLANDS OF SCARLET FEVER

BY DWIGHT O'HARA, M.D.*

ONCE upon a time (February 2, 1931) there were admitted to the Contagious Service of the Waltham Hospital a child and its aunt, both of whom had been in contact with the child's mother. The mother was said to have been ill at home with "quinsy"; the child was admitted as a case of scarlet fever; the aunt as a case of septic sore throat. The following day the aunt exhibited a scarlet fever rash. What did the mother have?

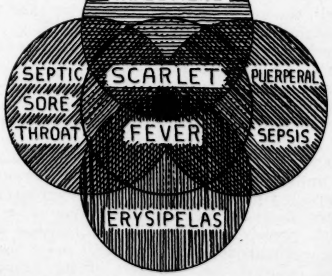
In contagious wards such questions are frequently asked. The answer may be glibly given by one whose experience is confined to classified hospital material. In this particular instance I have no doubt that the diagnoses as stated were sound. Of course the aunt was reclassified as a case of scarlet fever when she exhibited the rash, but the mother was not entitled to the dignity of such classification, and isolation, because she had no rash.

Now that the rash of scarlet fever has been shown to be due to a toxin produced by Streptococcus scarlatinae, and this organism (nearly half a century after it was first isolated and named) has been shown to be the etiological organism of the disease, one might hope for a more practical method of recognizing the infection. Such a method has not yet appeared. We can still teach a student the clinical syndrome of scarlet fever, but we cannot teach him how to recognize, in practice, Streptococcus scarlatinae. We make the diagnosis, not on the presence of the causative organism, but upon the effect on the patient's skin of a toxin produced by that organism—a mere by-product of its growth within the body. Thus the tail wags the dog in diagnosis, and consequently in treatment and in measures taken for isolation and control.

In many ways scarlet fever remains what Sydenham considered it: "a disease in name only". I do not mean to imply that scarlet fever, as such, is not a disease. Scarlet fever is a disease entity in the same sense that Pott's disease and consumption are disease entities, but freedom from these two diseases does not vouchsafe freedom from tuberculosis. If you happen to have sufficient scarlet fever antitoxin in your veins to prevent the toxin from making your skin red, you can't have scarlet fever. You can, nevertheless, be infected by Streptococcus scarlatinae and can manifest such infection in other ways. A compilation of these other ways has never been made, so far as I know, although clinical experience tempts me to start one with the following diseases:

Septic sore throat,
Puerperal sepsis,
Erysipelas,
"Surgical infections."

In the accompanying figure these diseases are conventionally arranged in two dimensions. If



we imagine these circles as soap bubbles, and supply thereby the third dimension (at the same time being careful to avoid the fourth) we obtain a conception of the possible relationships of these diseases that is sufficiently plastic to adapt itself to the changes experience inevitably forces upon us. Some bubbles will be broken, but there will always be suds enough to keep the cobwebs out. Such a conception can often help to explain clinical phenomena, can sometimes suggest rational measures of treatment, and may possibly give rise to effective suggestions in the field of preventive medicine.

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If these five diseases overlap one another as suggested, there are provided ten possible combinations to establish between one disease and another. With some of these combinations, such as that between surgical infections and puerperal sepsis, the difference is anatomical only. With others, such as erysipelas and surgical infection, we have but to recall Lister's battles with St. Anthony's fire at the Royal Infirmary in Glasgow. I shall discuss here only the major combinations—those between scarlet fever and the other four mentioned diseases.

1—Scarlet fever and surgical infections. The following case report will illustrate the borderland between these two conditions:

A boy, age 12, was seen because he had enlarged cervical glands, probably with abscess formation on the right, and fever. After a few days' observation in the Waltham Hospital the cervical abscess was incised by Dr. H. A. Wood, and an ounce or so of pus was released. A pure culture of hemolytic streptococcus was obtained from this pus. The following day the temperature was normal, but the boy developed a rather intense, typical, scarlet fever rash. The boy had not had scarlet fever previously, and there was no sore throat, historically, subjectively or objectively. The temperature remained normal while the boy was isolated, and he eventually desquamated.

In this case it is probable that Streptococcus scarlatinae was the organism, that it entered through the pharynx, was held in the cervical glands and was walled into the abscess—all without producing scarlet fever in a subject who was later shown to be susceptible to scarlet fever toxin. Probably sufficient toxin was not elaborated before the abscess formed, but was at that time, and was released into the blood stream when the surgeon opened the barriers of the abscess wall.

It is significant that the abscess wall permitted enough toxic material to escape to produce fever, and yet did not allow enough "toxin" to produce a rash to filter through until its continuity was destroyed by the knife. The rash, which forced the diagnosis of "surgical scarlet fever", was obviously a trivial incident—yet it caused a little panic in the open ward, and a somewhat expensive and tedious convalescence for the boy.

2—Scarlet fever and puerperal sepsis. Epidemics of "puerperal scarlet fever" have been reported. It was my lot to see one such epidemic in the Waltham Maternity Hospital in 1923. In two of the three cases in this small outbreak there was a scarlatinaform rash, with little if any angina objectively, and none subjectively. Dr. E. H. Place diagnosed one of these cases as "probably scarlet fever". They are analogous to that of the boy just mentioned—cases in which Streptococcus scarlatinae entered the body vicariously and elaborated sufficient toxin to produce the characteristic effect.

3—Scarlet fever and erysipelas. I have previously reported the circumstances under which a woman, who had had scarlet fever in childhood, simultaneously exposed herself to scarlet fever and isolated herself from all other exposure—and—after a period of not less than ten nor more than eighteen days contracted, not scarlet fever, but erysipelas[1]. Pure cultures of hemolytic streptococci were obtained in this instance, both from the woman's erysipelas and the case of scarlet fever to which she exposed herself. These two cultures were identical in their colonial appearances and under the microscope.

A careful history will often reveal that facial erysipelas has a prodromal stage of sore throat lasting for a day or two, and usually called "a cold" by the patient. Such commonplace affections as "colds" are easily dismissed by both patient and doctor when they are overshadowed by the development of more spectacular manifestations. This fact, however, is another connecting link between erysipelas and certain throat infections.

4—Scarlet fever and septic sore throat. As in the case of the aunt mentioned in the first paragraph of this paper, the diagnosis of scarlet fever depends upon the exhibition of a rash. Epidemics of sore throat with simultaneous cases of scarlet fever have been frequently reported, and are referred to several times in White's historical review of the subject[2]. In practice we frequently see scarlet fever in a family in which there are simultaneous cases of sore throat without rash. While it is true that certain strains called Streptococcus epidemicus are culturally distinct from Streptococcus scarlatinae, it by no means follows that antitoxic immunity to the latter organism concedes good health to those who come in contact with it.

There is still another type of Streptococcus scarlatinae infection, of which the following case is an example:

A man of 24 consulted Dr. H. A. Wood on January 21, 1931, because he had a rash of one day's duration. The rash was of the typical scarlet fever type in character and distribution. The man was not sick. Pastia's and the tourniquet signs were positive. The temperature was normal. The tongue was normal. The throat was normal. The urine was normal. Throat cultures were negative for hemolytic streptococci. No focal infections were found. He remained well. Did he have scarlet fever? Should he have been isolated?

Our present knowledge of scarlet fever does not help us in answering these questions, but it seems to me that this conception of overlapping groups of hemolytic streptococci is helpful clinically. The following case is an example of its guidance in practice.

Dr. W. W. Harrington attended a woman who delivered herself of a baby normally and easily, on December 6, 1930. No pelvic examinations were needed or made. The husband had mentioned casually that he was getting over a sore throat and "cold", but the information was not considered at

the time to be anything more than the usual family gossip. This husband, however, had slept with, and later cared for his wife. Within three days the woman came down with a violent puerperal fever. She had a mildly sore throat, without rash. She was seen by Dr. Donald Macomber. I saw her on the sixth day, for the main purpose of supplying the family with another opinion. The woman was obviously going to die of what was clinically a streptococcus septicaemia, although a blood culture taken at the time remained sterile after five days' incubation. With this conception of overlapping streptococcus groups, and the economic condition of this family in mind, it was decided to treat the woman with the Scarlet Fever Streptococcus Antitoxin of the State Department of Public Health. Of course such treatment was not promising and the patient died as she was expected to, on the following day. We merely used the most rational agent that was at hand under the circumstances. Three days later it was discovered that the husband had begun to desquamate, and the Lexington Board of Health placarded the house for scarlet fever! In retrospect we felt that we could not have done better than to use the serum—the infection having been probably due to Streptococcus scarlatinae, transmitted from the husband, although tangible evidence of this probability did not appear until three days after the patient's death.

In the cases here referred to, and in all ordinary clinical work, we must be satisfied, if not pleased, to obtain cultures of hemolytic streptococci. To the clinician such organisms as Streptococcus scarlatinae are like the King; we may know who they are, and even what they look like, but we must find "the rose" to signify the Royal Presence.

One cannot help but reflect on the value of antitoxic immunity to scarlet fever. Let us assume that the Dick test is a reliable estimation of such immunity, and that it can be acquired by the injection of scarlet fever toxin in suitable doses as well as by an attack of the disease itself. This sort of immunity simply means that the individual possessing it cannot have a rash, and presumably cannot be damaged in other ways by the intoxication of which the rash is a manifestation. The difficulty with the prevention of scarlet fever is that we have named and learned to handle the disease in terms of what may be an insignificant manifestation. Whether or not the capillary damage that causes the rash extends to other organs than the skin is not known. It is conceivable that such a mechanism is the origin of endocarditis or nephritis, although both of these lesions occur in subjects who have not had a rash.

In summary, Streptococcus scarlatinae may be said to attack man with the following effects:

1—Rash, without intoxication or septic complications.
2—Rash and intoxication, without septic complications.
3—Rash and intoxication, with septic complications.
4—Septic complications, without rash or intoxication.

The last group may be subdivided into such anatomical diagnoses as quinsy, septic sore throat, surgical infections, puerperal fever, erysipelas, otitis media, mastoiditis or sinusitis. Any of these conditions may be transmitted or transmuted to another, according to the constitutional pattern of the host.

In conclusion, the abolition of hospital sepsis, together with lesser refinements in knowledge, has gradually led us away from a former robust view of the streptococcus infections. Thus, in 1795, Gordon of Aberdeen alleged that puerperal fever was an erysipelas of the bowels and peritoneum. Also, scarlet fever in the guise of puerperal fever, without angina and without rash, was a part of the "variable" theory of the latter disease enunciated by Eisemann in 1837[3]. These views must have been helpful in those days. The purpose of this paper is to point out that with some modifications they are helpful today.

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COOPERATIVE LIFE INSURANCE COMPANIES

The American Society for the Control of Cancer announces a plan of interest to those in charge of follow-up work with cancer patients which has been developed by the Public Health Committee of the Association of Medical Directors of Life Insurance Companies.

Under this plan all life insurance companies have agreed to furnish, on request, to responsible inquirers, such as hospitals, information regarding the health status of any of their policyholders. All the data necessary to obtain this information is the name and date of birth of the patient and the name of the insurance company in which the policy is held. It is requested that inquiries for such information be directed to the chairman of the sub-committee of the Public Health Committee having the matter in charge, Dr. C. L. Christiansen, Medical Department, Metropolitan Life Insurance Company, 1 Madison Avenue, New York City.

The Committee requests that all hospitals add one question to their personal history forms, viz.: In what company do you carry an insurance policy? The name of the company, the name and date of birth of the patient will enable the insurance company to give the present health status of the patient, if living, or the date and cause of death if dead.

This offer of coöperation should be helpful in maintaining a complete follow-up on cancer patients. It has been developed from a desire on the part of the insurance companies to make their medical records of the fullest possible use in the prevention and control of disease.

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 17301

A MONTH'S JAUNDICE, NAUSEA AND MALAISE

MEDICAL DEPARTMENT

First admission. An Irish-American bookbinder sixty-three years old entered February 16 complaining of jaundice, nausea and general malaise of more than a month's duration.

For five years the patient had felt worn out, tired and generally wretched. Three years before entry he went to Florida for the winter. He had had anorexia and frequent nausea but no vomiting. For over a year he had been troubled with gas and distention after meals, which he now attributed to milk of magnesia which he had taken for seven years for relief of chronic constipation. On January 5, six weeks before admission, he began to be quite nauseated, especially at the sight of food, and felt very tired and miserable. From that time he had not been able to bear tobacco in any form. On the tenth he was decidedly worse and had severe itching and steady dull aching just above the pubis, at the umbilical region and at the level of the xyphoid. His physician gave him sodium hypophosphates and told him there was nothing to worry about. A week later he became jaundiced. His urine became dark red and the nausea and itching became severe. His physician told him that all his symptoms usually went with jaundice. He remained quiet in the house from that time. Several days later his stools became gray and had been steadily more so. His symptoms gradually grew a little better until two weeks before entry. Then he began to grow worse in every way except that he had no abdominal pain. The jaundice, nausea, itching, etc. had steadily increased from that time, he had difficulty in sleeping and every day from about four o'clock to seven he was chilly and nauseated, though there was no definite chill. He had only a little belching after meals.

The family history is not significant. His wife had not been pregnant during thirty-six years of marriage.

His general health had always been good except for poor digestion—nausea, distention after meals and anorexia. In his youth he used to have one or two attacks of "biliousness" a year with nausea and vomiting. He thought he had syphilis at twenty-three. Doctors disagreed. He had always had many head colds but no prolonged coughs. All his teeth had been extracted for severe pyorrhea. For five years he had had frequent nocturnal attacks of palpitation beginning and ending suddenly and lasting one or two hours. Since he gave up drinking beer fifteen years before entry he had been troubled with constipation.

Records of the Outpatient Department show that he came eight years before entry complaining of stomach trouble of six years' duration—more or less constant rumbling, gas after meals, anorexia, occasional nausea, loss of fifteen pounds in eight months and poor sleep. Examination showed the first sound roughened all over the precordium. There was a sense of resistance throughout the epigastrium. The liver and spleen were not felt. The knee jerks were hyperactive. The red cell count was 3,940,000. A smear was practically normal. X-ray examination showed no evidence of abnormality in the gastro-intestinal tract except general low position. A Wassermann was reported insufficient.

For seven years he had had tinnitus only at night and only occasionally severe. For some years he had been nervous and slightly distressed for no known reason. He had mild insomnia. For some time he had had pains in the calves of his legs. Twenty-six years before admission he weighed 200 pounds, his best weight. His usual weight was 140.

Clinical examination showed an emaciated (129 pounds) man lying comfortably flat in bed. The skin was dry; the skin and sclerae were deeply jaundiced, with numerous excoriations and dilated venules scattered over the entire body. The lungs were clear. The heart was normal except for sounds of poor quality. The pulses and arteries were normal. The blood pressure was 120/70. The abdomen was moderately distended and tympanitic. The liver edge, smooth and not tender, was felt 9 centimeters below the costal border in the midclavicular line. Another examiner describes it as hard, irregular and slightly nodular. Rectal examination was negative. The superficial veins of the groins were engorged. The pupils and reflexes were normal.

The amount of urine is not recorded. The urine was dark at three of four examinations. The specific gravity was 1.013 to 1.026. There was a very slight trace of albumin at two examinations, bile at three. (The fourth was possibly a wrong specimen.) Blood examination showed 5,550 leukocytes, 66 per cent polynuclears, hemoglobin 75 to 70 per cent, reds 3,690,000 to 3,800,000, smear normal. Hinton and Wassermann tests were weakly positive once, negative once. The stools were yellow once, grayish twice. The icteric index was 50 at entry, 75 February 20. A liver function test showed 95 per cent retention. A van den Bergh

test February 18 showed 11.63 milligrams bilirubin. Another February 20 showed 18.75 milligrams. The non-protein nitrogen was 29 milligrams. Gastric analysis showed cloudy, slightly yellow fasting contents, free acid 28, total acidity 31, guaiac negative; test meal at half an hour, cloudy, slightly blood-tinged, free acid 65, total acidity 70, guaiac positive; at one hour, cloudy, slightly yellow and slightly blood-tinged, free acid 75, total acidity 80, guaiac positive.

The temperature was 97° to 99.5°. The pulse and respirations were normal.

X-ray examination with a barium meal showed the stomach of the ptotic type. In the upright position the lower pole was 3 finger-breadths above the level of the symphysis. Peristalsis was normal. Mobility was free. There were no filling defects. On fluoroscopic examination the outlines were smooth. On the film there was some irregularity in the lesser curvature next to the pylorus, possibly only a stage of contraction. The rugae of the stomach were normal. The duodenum was negative. The examination showed no evidence of abnormality. A plain gall bladder film was negative.

Operation was advised but was refused. February 21 the patient was discharged.

History of interval. After leaving the hospital the patient remained at home, spending much of the time in bed. The jaundice persisted and intense pruritus disturbed his sleep. He continued to have marked anorexia and took very little nourishment. His stools continued to be putty colored and his urine deep red and almost syrupy. He had not had nose bleeds, but had one during the interview. After the blood had dried on the handkerchief a yellow stain was seen. He continued to show marked cachexia and thought he had lost more weight.

Second admission. February 26, five days after his discharge.

Clinical examination was as before except for the following observations: There were old purplish spots on the body and legs said to be due to pinching to alleviate the pruritus. The lungs showed a questionable rare râle at the right apex on coughing and decreased resonance at the right base, possibly due to high diaphragm. The liver edge was now below the umbilicus.

The amount of urine was 30 to 120 ounces. The specific gravity was 1.028 to 1.016. One specimen of urine was mahogany colored and hazy, another orange and cloudy, two others golden and clear. Bile was present in large amounts February 27 and March 4, absent March 8 and 12. The first two specimens showed no albumin, the last two a slight trace to the slightest possible trace. There were occasional leukocytes once, red cells twice. Blood examination showed 6,400 to 16,200 leukocytes, hemoglobin 45 to 55 per cent, reds 3,175,000 to 4,080,000. Two stools before March 5 were light brown or gray without macroscopic or microscopic blood. Three after March 10 were gray to black or dark green with very strongly positive guaiac but no macroscopic blood. Before the operation March 5 the sedimentation rate was 12 millimeters at 15 minutes, 25 millimeters at 30 minutes, the hematocrit 35 millimeters at 45 minutes. The icteric index was 100 plus. The van den Bergh showed 26.47 milligrams of bilirubin per 100 cubic centimeters February 27 and 16.27 milligrams March 4.

Before the first transfusion, March 4, the chart was not remarkable. Following this transfusion the temperature rose to 100.5°.

March 5 operation was done. The patient was fairly uncomfortable that night. The temperature rose to 102°. The following day he vomited a little dark blood. March 7 gastric lavage yielded 34 ounces of dark blood. The tube was left down. The patient was placed on constant intravenous. 600 cubic centimeters of blood was given by transfusion that day and 500 cubic centimeters of citrated blood the following day. Dark colored material continued to drain from the stomach that day and the next. March 9 he looked and felt better and March 11 better still. That day 600 cubic centimeters of citrated blood was given. March 13 the patient had stopped vomiting and was getting some fluids through. The chart was normal. The stools showed some bile. March 14 he quietly died.

Clinical Discussion

BY RICHARD C. CABOT, M.D., AND GEORGE W. HOLMES, M.D.

NOTES ON THE HISTORY

DR. CABOT: These symptoms, jaundice, nausea and malaise in a young man do not usually alarm us. We say, "That is probably catarrhal (i.e. infectious) jaundice." Catarrhal jaundice often lasts more than a month. Even though we do not know much about its cause, we know pretty well what happens to it in most cases. But catarrhal jaundice at sixty-three is uncommon. Anything involving jaundice and stomach disturbance at that age makes us fear cancer.

I have pointed out a number of times before that no matter what is the matter with you, you get over your taste for tobacco very quickly if you are seriously sick.

His physician told him that all his symptoms usually went with jaundice. That was perfectly accurate. He might likewise perfectly well have told him that the gray stools were also part of the "jaundice".

Nausea, distention after meals and anorexia—that, I take it, had been a chronic complaint, making it all the harder to suppose anything serious is going on now.

The patient was chilly and nauseated at the end of the day. That is a surprising thing in

view of all that has gone before. There is nothing whatever above to suggest infection. When a person is chilly at a definite time of the day it is almost inevitable to assume there is fever at that time. If there is fever there might easily be nausea. We were not looking for infection, so that is a surprising thing.

Apparently beer had acted as a laxative with him.

I suppose they told him in the Outpatient Department that nothing was the matter, and I do not know that we have any good reason to suppose there was anything that we could then put our fingers on.

It is worth while to pause a moment over the symptoms in the paragraph before the physical examination. That is the sort of thing that throws us off so often. When we get a man with "neurasthenie" symptoms like that we are very apt to say that he has nothing the matter with him. We forget that a neurasthenic person can have cancer or any other organic disease as well as anybody else.

NOTES ON THE PHYSICAL EXAMINATION

A very dry skin in a person who has stomach trouble suggests what besides frequent vomiting?

A STUDENT: Dilatation.

DR. CABOT: Yes, but I mean back of that. Pyloric obstruction. What has that to do with dry skin? If you go back to your physiology you will remember that water is not absorbed in the stomach, not until it gets down to the intestine. If there is pyloric obstruction there is so little gastric absorption and therefore so little water ingested that we get dry skin. When you have any reason to think of pyloric obstruction, dry skin should always be a confirmatory sign. I do not know what is coming, but it is still right to think of pyloric obstruction as possible even though nothing of the kind comes up.

There is nothing more important that an examiner could find than that the liver edge was hard, irregular and slightly nodular. One could not possibly leave it at that, for if it is true, there is only one thing essentially that it can mean. There are only three things that give us a nodular liver, syphilis, cancer and cirrhosis. In syphilis we do not ordinarily get nodules. We get great masses as big as a fist. In cirrhosis the nodules are so small we cannot feel them. Cancer is the only disease with nodules of the size that we can feel. If this is a correct observation it is tremendously important. It means cancer, presumably metastatic cancer, of the liver.

The fact that the superficial veins of the groins were engorged tends to show portal obstruction, probably from the same source from which the liver nodules came.

What should you think of the cause of albuminuria under these conditions? There is one thing of course that comes into our minds at first about that albumin and that is that it is due to the irritation of bile. Anyone with any considerable jaundice has albumin in the urine. That should be the first cause to think of. It may perfectly well turn out to be due to nephritis, but that need not be assumed yet.

The fourth specimen of urine was possibly a wrong specimen, so quite possibly there was bile at all examinations.

The almost total retention by the liver function test is nearly certain evidence of organic liver disease.

That is an enormously important x-ray examination. It does not look at all like cancer of the stomach so far as the gastric analysis and the x-ray are concerned.

DR. HOLMES: These are the plain films of the gall bladder. That means they did not try the Graham test. Of course a Graham test in a jaundiced patient is of no value. These films were taken with the hope that stones might show. Something like 30 per cent of the patients who have gall stones do show them in that way. But a negative film is of no help one way or the other.

In this film we have a good picture of the stomach. This more or less irregular spot in the pylorus is the one described. That is not characteristic of any organic lesion. It is more likely to be due to some irregularity in the peristaltic wave. The fact that they got no deformity of the rugae of the stomach would also be evidence against an organic lesion.

DR. CABOT: I certainly should be sure that there is something wrong there except for the fact that you tell us there is not. I wish you would tell us a little more about how that film differs from the common irregularity of an organic lesion. If I had been on a desert island with that film I should have said something was wrong.

DR. HOLMES: We can watch a peristaltic wave of course as it starts here and passes down over the stomach. If we had an indurated lesion in the stomach at this point there would be a break in the peristaltic wave and probably a correspondingly deep wave on the opposite side. In this case nothing of that sort happens. The wave apparently passed over the lesion. The character of the lesion itself serves to confirm our decision. Ulcers in that region are rather rare. They are apt to be higher. If it were ulcer one would expect to find first induration and later a definite crater, which this does not show. If it were carcinoma it might give a picture much like that in the early stages. Later on more or less deformity would be constant in all the films and at all times. This apparently was inconstant. Its appearance changed and peristalsis passed over it.

Another point against its being anything is

that if it were a lesion, particularly one localized as close to the pyloric ring as that, it would probably cause stasis. We cannot however say that he has not got very early cancer in that region.

DR. CABOT: But the absence of stiffness in the wall is against it.

I take it that the operation which was advised but refused was an exploratory operation. Probably in the end they were glad it was refused.

In view of what Dr. Holmes has told us about the stomach, what are we going to think of these stomach symptoms? The patient still has the same symptoms that have bothered him all along.

A STUDENT: They were due to jaundice.

DR. CABOT: Yes. The patient's family will be sure to ask you about that. You can say perfectly properly that probably jaundice is causing all the symptoms.

The syrupy urine is of no significance. It merely means that there is a great deal of bile.

Why did he have nosebleed?

A STUDENT: From jaundice.

DR. CABOT: Yes. Jaundice favors hemorrhages anywhere.

The yellow stain on the handkerchief after the blood had dried showed that there was bile in the blood.

What have they left out about the liver that you and I particularly want to know?

A STUDENT: Its contour.

DR. CABOT: Exactly. There was at entrance a report of an irregular liver. If that was found once they certainly ought to verify it the second time. I cannot imagine why they did not, one way or the other.

"One specimen of urine was mahogany colored and hazy, another orange and cloudy, two others golden and clear." What do you make of that? What about that golden and clear urine? He cannot have much bile in that. For some reason or other the stoppage of bile is intermittent. I do not see how else we can explain the urine clearing as much as that.

A STUDENT: Perhaps it is postoperative.

DR. CABOT: That is possible. I did not know there was an operation coming.

"The reds were 3,175,000 to 4,080,000." I do not believe it for an instant. One of those counts is wrong. In such a case the count does not change by millions like that in a few days, especially in that direction.

The large amount of bilirubin merely shows tremendous obstructive jaundice.

DIFFERENTIAL DIAGNOSIS

We must make a preoperative diagnosis. Here is a man with cachexia, emaciation, stomach symptoms and a large liver once said to be nodular. The important negative evidence is Dr. Holmes' evidence of a negative outline in the stomach and duodenum. These hemorrhages of course shown in the stools can be accounted for how?

A STUDENT: They were operative I think.

DR. CABOT: Supposing some of them were before operation.

A STUDENT: They might be due to jaundice.

DR. CABOT: Yes, like the nosebleed. Anybody with so much jaundice can have bleeding from the bowels.

What shall we make for a preoperative diagnosis?

A STUDENT: Primary liver cell carcinoma.

DR. CABOT: That is going farther than I was prepared to go. I was going to say carcinoma of the liver, primary site unknown, although primary carcinoma of the liver is not so rare as it was. The pathologists are working overtime to make that a commoner finding. So that you may be right on that.

A STUDENT: Why did they operate for cancer of the liver?

DR. CABOT: They did not.

A STUDENT: What is against carcinoma of the pancreas?

DR. CABOT: The only thing I see against it is the possible question of how you interpret the record. It is possible that he had at times clear urine prior to operation. A point against carcinoma of the pancreas would be the continual increase in the size of the liver. In the second examination they said the liver was "now below the umbilicus". Metastases might make the liver grow rapidly bigger. I should say cancer of the liver, primary site unknown. Is it true that at times the urine was free from bile?

MISS PAINTER: That was after operation.

A STUDENT: Perhaps they switched the bile into the stomach or intestine.

DR. CABOT: That is a good point. Yes, they might have gone around the obstruction. There are various ways in which that could be switched. I cannot say anything against a possible diagnosis of primary cancer of the pancreas with metastases in the liver and presumably metastases in the omentum whereby he gets these enlarged veins of the groin, probably due to portal stasis.

A STUDENT: Do you think it had been going on five years?

DR. CABOT: I do not know.

A STUDENT: No type of cirrhosis would give a liver as big as that.

DR. CABOT: Yes, that is quite possible. A big liver is a common thing in cirrhosis. About one-third of cirrhosis cases have a small liver, about one-third a normal liver and one-third a big liver. One should never throw out cirrhosis because of a big liver. The phrase "atrophic cirrhosis" is misleading because most "atrophic cirrhosis" is not atrophic.

A STUDENT: It seems surprising that with so much obstruction in the common duct he did

not have ascites. He had portal obstruction too.

DR. CABOT: That depends on how much pressure there is on the glands in the mesentery. I do not see that the completeness of obstruction of the common duct has anything to do with complete obstruction of the vessels on which portal stasis depends.

A STUDENT: Would malignancy of the bile duct give more constant symptoms and signs?

DR. CABOT: I am inclined to say cancer of the pancreas because that is so common. But the gall bladder or bile ducts would do just as well as explanation of this case. I do not know any way to exclude cancer of the bile ducts.

Have you anything more to say about this preoperative diagnosis? They certainly would not have operated if they thought it was what we think it. I suppose they said, "It might be gall stones." They might be mistaken in their sense of the nodules in the liver. There have been two cases in this hospital where a man was allowed to die when at autopsy they found nothing but gall stones. I think Dr. Maurice Richardson never forgot one case on which both he and I went entirely wrong.

OPERATION

Under spinal anesthesia through a lateral retracting incision the abdomen was explored. The gall bladder was markedly distended and had some fibrin on the outside indicating some pathology in the gall bladder wall, possibly beginning necrosis. The liver was very large and extremely fibrotic, showing a good deal of cirrhosis. There was a tumor in the region of the head of the pancreas which seemed to be about the size of an egg and partially to involve the wall of the second portion of the duodenum. The common bile duct was markedly distended. There were no metastases in the liver and none felt in the omentum or the pelvis. The gall bladder was partially aspirated and brownish mucoid material was obtained. There was no bile in it. A cholecystgastrostomy was done, using three layers of chromic catgut. Some omentum was sutured to the anastomosis.

FURTHER DISCUSSION

DR. CABOT: With a lesion in the head of the pancreas—and I should suppose we need not doubt they were right about that—and no metastases felt, I do not know that we need say anything more about the liver. Why is the liver big if there is no cancer?

A STUDENT: From cirrhosis?

DR. CABOT: Cirrhosis is one possible reason. Aside from cirrhosis?

A STUDENT: Because it is full of bile?

DR. CABOT: Yes. When we have complete obstruction, as we have here, the liver is full of bile. We have two possible reasons, then, for its being big aside from the question of metastatic cancer. I do not believe we have yet excluded the possibility of cancer of the liver itself. If they are right about the pancreas I suppose it would be extraordinarily rare to have two separate tumors. I think we must say there is probably no cancer, primary or secondary, in the liver.

34 ounces of blood from a gastric lavage is considerable!

You can see from the whole tone of this record that they felt as if he were going to get well and go home.

He could not have quietly died without something new happening. What do you suppose happened?

A STUDENT: Hemorrhage.

DR. CABOT: Yes, I think so. That is more likely than peritonitis, though he might have had peritonitis without symptoms.

A STUDENT: Would you say hemorrhage or embolism?

DR. CABOT: Hemorrhage. This is just the sort of case to have hemorrhage. He had been bleeding through the stomach, 34 ounces at one time. Then I suppose he had a big hemorrhage and died of it, even though they say he "quietly" died. They do not give us symptoms of internal concealed hemorrhage. Shall we say cancer of the pancreas, with cirrhosis of the liver independent, I take it? We have no good ground on the facts before us for saying it is cancer of the liver. There is plenty of explanation for the facts without it. There is a good chance for metastases in the omentum and retroperitoneal glands, though apparently not extensive or he would have had ascites. In the rest of the body, the heart, lungs, kidneys and nervous system, I do not see any reason to suppose disease. At sixty-three he may have arteriosclerosis, but that had nothing to do with his death. He had the arteriosclerosis that we all have I suppose at sixty-three.

CLINICAL DIAGNOSES (FROM HOSPITAL REPORT)

Carcinoma of the head of the pancreas.
Hepatic insufficiency.
Uremia.

DR. RICHARD C. CABOT'S DIAGNOSES

Cancer of the pancreas.
Cirrhosis of the liver.

ANATOMIC DIAGNOSES

Carcinoma of the head of the pancreas.
Pancreatitis.
Biliary cirrhosis of the liver.

PATHOLOGIC DISCUSSION

DR. MALLORY: The autopsy showed a cancer of the pancreas. It was an extremely small one, only two centimeters in diameter, lying just in the head of the pancreas, invading the wall of the duodenum and involving the ampulla of Vater, the common bile duct and the pancreatic duct. The remainder of the pancreas was dis-

tinctly abnormal, showing marked dilatation of the duct and some degree of pancreatitis. The liver at the time of autopsy had shrunken back so that it reached only to the costal border and weighed only 1400 grams, smaller than normal. There was only a moderate amount of cirrhosis, but it seemed to be biliary in type. A typical biliary cirrhosis of course can be produced experimentally by ligation of the bile ducts, and a slight degree of it is common where there is a long-standing occlusion of the bile duct.

We found nothing else of any significance at all. I have no explanation for his sudden death. There was no evidence of hemorrhage.

DR. CABOT: Do I understand that you think it is quite probable that this cirrhosis was due to the pancreatic cancer which caused the backing up of bile?

DR. MALLORY: Yes, I think that is a fair statement. Some degree of cirrhosis can be found microscopically in practically every case of cancer of the pancreas involving the bile ducts. If they live a certain number of months after the obstruction they will show some degree of cirrhosis. It is not ordinarily very marked. The most effective way of producing it is by fairly marked but not complete obstruction. For instance in congenital stenosis of the common bile duct in infants marked biliary cirrhosis may be found in those cases in which the occlusion is incomplete, cases in which some bile is able to pass through.

DR. CABOT: Is cancer of the pancreas a thing that may exist for a long time, may come on slowly?

DR. MALLORY: I think that is almost certain, but on the other hand we really know relatively little about its duration. This was a small one, but in a strategic situation.

DR. CABOT: Can you tell anything histologically about its being a slowly growing tumor here?

DR. MALLORY: It was apparently well differentiated and slowly growing. I cannot tell whether it had been present six months or two years.

DR. CABOT: Would six months be enough to give him this cirrhosis?

DR. MALLORY: Yes.

DR. CABOT: Could you feel nodules on the liver surface?

DR. MALLORY: No.

DR. CABOT: So that the surgeon was probably a little imaginative.

DR. MALLORY: I think so. Even microscopically there was only a slight cirrhosis.

A STUDENT: Have you any suggestion as to why he had all this gastric trouble?

DR. CABOT: No. That question came up before and I cannot say anything at all. I do not believe he had this disease fourteen years or anything like it.

DR. MALLORY: His gall bladder might have been a possible cause for that. The findings at operation were strongly suggestive of chronic cholecystitis.

DR. CABOT: Dr. Daniel F. Jones is on record a number of times as saying he is strongly against many diagnoses of chronic cholecystitis. I often wonder whether there is such a thing as chronic cholecystitis. I think Dr. Jones is not quite so strong against it as most of us are against chronic appendicitis. It certainly is a very debatable question as to what constitutes chronic cholecystitis as a clinical entity. I find it difficult to imagine that would cause all this patient's digestive symptoms.

A STUDENT: Are there any further guesses as to what was the cause of his death?

DR. CABOT: No; Dr. Mallory cannot help us and I cannot. You know from general statistics that if you take a hundred cases of sudden death autopsied, *the commonest cause of all is no cause!* The commonest result is that the pathologist can not find a cause for the sudden death. After that the commonest findings postmortem in cases of sudden death are things like cardiac infarction, pulmonary embolism and cerebral hemorrhage. But the commonest finding—and I remember pretty extensive statistics—is always "cause unknown". So it need not any longer surprise us when we hear what we have heard today.

CASE 17302

A DRAINING SINUS FROM A PHALANGEAL JOINT FOLLOWED BY DYSPNEA, EDEMA AND COUGH IN A WOMAN OF EIGHTY-SEVEN

MEDICAL DEPARTMENT

PRESENTATION OF CASE

DR. OTTO C. YENS*: This patient was a single white native born woman aged eighty-seven. She entered the hospital complaining of weakness of five months' duration.

She had always been quite well and active, although very thin. She had had no serious illnesses, but had had a hacking productive cough for many years without associated symptoms. She had also had frequent colds. Her bowels were always moderately constipated and she suffered more or less from gas.

Her present illness began a few years ago, when she noticed that she was getting weaker. She remained quite active however until a year and a half ago, when she was forced to lead a chair and bed existence with dyspnea, edema of the ankles and cramps in the legs. Five months ago she fell down. Since that time she had been weaker and had suffered more and more from edema of the ankles, cramps in the legs and dyspnea, not quite so marked with limited activity. A few weeks before admission she was put on a daily ration of 15 to 20 drops of tincture of digitalis with improvement of the edema. One week before admission the chronic

*Junior interne on the West Medical service.

cough ceased. At the same time she became more dyspneic. The digitalis was stopped. She complained of feverishness. She had a recurrence of edema, felt weaker and lost her appetite. Two days before entry she developed urinary incontinence with burning micturition. There was no loss of weight. When she entered she was an extremely sick woman.

The physical findings were essentially as follows: She was extremely emaciated, very pale, lying semicomatose against a high bed rest. Her skin was dry, with numerous senile keratoses, and hung loosely on the skeleton with no subcutaneous tissue. There was marked bulging of the right chest posteriorly, with kyphosis of the spine and widening of the right chest and intercostal spaces. There was slight right dorsal scoliosis. There was marked atrophy and retraction of all the interspaces on the left side. The supraclavicular fossae were very deep. Expansion was very limited on both sides, more on the right than on the left. The thorax was very long, descending almost into the pelvis. The heart was enlarged to the left. There was a systolic thrill. At the apex systole was so short that the first sound, a loud second sound and a sharp systolic murmur were almost simultaneous. There was no apical diastolic murmur. The first sound at the apex was weak and at times absent. At the third space to the left of the sternum the first and second sounds were more distinct and the murmur was fainter. The rate was extremely irregular and there were occasional extrasystoles. The peripheral vessels were markedly sclerosed. The right lung was slightly dull below the scapula, with harsh and increased breath sounds over that area of the chest and with a few scattered crepitant râles. The abdomen was prominent but essentially negative. There was pitting edema of both legs and the sacrum. The ankle joints were quite swollen and misshapen with brawny edema.

An electrocardiogram was done at once. This was seen by Dr. White and reported as showing many premature auricular beats, left axis deviation and occasional extrasystoles.

The patient was given 9 grains of digitalis intravenously. The condition remained unchanged for half an hour. Then she started to vomit, vomited for half an hour and died.

A Physician: What was the blood pressure?

Dr. Yens: It was 110/70.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Arteriosclerotic heart disease.
Generalized arteriosclerosis.

ANATOMIC DIAGNOSES

Tuberculosis of the lungs.
Tuberculous ulcers of the intestine.
Tuberculosis of an adrenal gland.
Tuberculosis of a phalangeal joint with draining sinus.
Arteriosclerosis.
Hypertrophy of the heart.
Thrombosis of the left iliac vein and the vena cava.

PATHOLOGIC DISCUSSION

Dr. Tracy B. Mallory: This woman came in of course *in extremis* and comparatively little could be done in the way of study. The surprise in the case developed at autopsy, when it turned out that she had a very extensive active tuberculosis. On general grounds the history of edema, dyspnea and so on had been rather reasonably diagnosed as cardiac. How much of a cardiac element there was I do not believe I can say from the autopsy. Her heart weighed 325 grams, which ordinarily we should say is not hypertrophy. On the other hand she was extremely emaciated and a small woman to begin with, so that I think for her that represents definite hypertrophy. There is a difference of 50 per cent between the weight of the heart and the kidneys moreover, which I think is rather a significant ratio. Her blood pressure had never been high. The coronaries were not in bad condition. She had a considerable amount of arteriosclerosis, yet on the whole I felt fairly well satisfied that she did not die primarily of heart disease. Her edema was at least partly explained by our finding of a thrombosis in the left iliac vein and the lower 3 centimeters of the vena cava. One point in her history which perhaps deserved more attention than it received was that her mother and sister both died of consumption. An acute flare-up of a tuberculous process in the ninth decade is by no means so rare as it is usually supposed to be.

Microscopically we found obvious tubercles scattered throughout the lungs, quite extensively in both upper lobes, in small numbers in the lower lobes.

She had very definite intestinal ulcers, completely annular, with numerous tubercles on the serosa.

A complete surprise was one of the adrenal glands. There is no trace of the adrenal cortex or the medulla left. There is complete caseation. The other adrenal was normal.

The iliac vein showed old thrombosis with early organization. I cannot trace any connection between that thrombosis and the tuberculosis.

The larger blood vessels of the kidney show very extensive intimal thickening. On the whole it seems to be the large vessel type of process which is not generally associated with hypertension.

It is always interesting to try to trace the course of a tuberculous process and to find the focus from which dissemination takes place. She had fractured a phalanx of a finger three years ago. Four months ago this swelled and turned blue. It was lanced. A draining sinus persisted. I think this was the focus from which the process spread.

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BACTERIOPHAGE

A LITTLE over 15 years ago Twort[1] noted that in certain bacterial cultures he could demonstrate an agent, which was capable of producing dissolution of the bacteria, could be transferred from culture to culture and increased in cultures following such transfers. He wisely failed to speculate concerning the nature, origin and mode of action of this transmissible lytic agent, but did express the opinion that disintegration of the bacteria and subsequent regeneration of the agent were directly concerned with the process. Two years later d'Herelle[2], working independently, observed the same lytic phenomena, but he ascribed the results to the action of a living ultramicroscopic virus—*Bacteriophagum intestinale*—which produced an infectious disease in the bacteria, resulting in swelling and, eventually, dissolution. On the basis of this and subsequent observations d'Herelle[3] has built up an ingenious theory relative to the importance of this agent—the so-called "bacteriophage"—in human infectious diseases, and, within recent years, a great number of papers by other investigators have appeared in medical literature. Many of the latter, it is true, disagree with d'Herelle's interpretations and conclusions, but all agree that these lytic agents can be found for many of the common bacteria which are responsible for human disease and that the possibility of the therapeutic use of bacteriophage is not unreasonable.

Bacteriophage is recovered most commonly in nature from the intestinal tracts of animals and from polluted soil and water. In suitable cultures it increases rapidly in amount and produces lysis which may go on to sterilization. It can be passed through the finest porcelain filters—hence, is sub-microscopic—and its action is markedly impaired by heating above 60°C. or by repeated heating and thawing. A bacteriophage effective against one species of bacteria has little or no lytic power for other bacteria. Different strains of the same bacterial species vary in their susceptibility, and resistant subcultures may be obtained from a relatively susceptible strain. More recent experiments[4] seem to indicate that this lytic agent, rather than being a living virus, is a product of bacterial metabolism, but absolute proof is lacking since experiments designed to produce bacteriophage directly from bacteria have not been convincing.

Bacteriophage has been used in the treatment of dysentery and staphylococcus infections and the results, though poorly controlled, have been encouraging. The chief obstacle, apparently, is the difficulty of establishing and maintaining in the human body an effective concentration of the agent and the hope for its use in the prevention and treatment of infection would seem to center upon some means of removing the inhibiting substance and permitting the agent to act as freely in its natural environment as it does in the test tube.

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THE DANCE OF DEATH

THE origin of the unusual concept of dancing with death occurs in the literature and art of the Middle Ages. It was probably first associated with church plays, performed in churchyards for the religious instruction of the people, and the earliest poems represent a dance of the living with the dead. Later, the dead became personified as Death and the skeletonized human body represented the process of death. The first illustrations occur in the wall paintings in cemeteries and churches and one in Paris is known to date from about 1424. In this remarkable painting Death walks along with each

individual, hand in hand. Thus the thought of death was expressed as a horrible experience and Death itself was depicted as a gruesome, putrescent cadaver. It would seem, in the Middle Ages, that the fear of the agony of death transcended almost all other emotions.

If one studies the pictures delineating the dance of death, of which there are many, from the 15th century to the present time, it is obvious that there has been a great change in our conception of what death means. At first feared, later it was revered as an object of salvation through righteous living; still later, it was caricatured; and finally, the modern concept of death as a normal termination of a natural period of evolution found its way into the art of the time. Death lost many of its horrors and, especially during the late war, it was faced with bravery or even with cynical indifference. Many people lost their belief in personal immortality and regarded death simply as the end of the individual life.

All these variations and motifs are well depicted by the unusual collection of pictures and prints gathered together by the late Dr. Aldred Scott Warthin of Ann Arbor, Michigan. The history of his collection is not without interest. In 1893, as a young medical student passing through Nuremberg, he happened to see the picture of Dürer's "Ritter, Tod und Teufel." He bought this and from such a beginning, over a period of thirty-eight years, he collected nearly seven hundred pictures of a similar nature. The reproduction of many of these, accompanied by a splendid descriptive text, has recently been published*. From an innocent hobby, Dr. Warthin has evolved an excellent treatise on a little known subject. Although pictures of this type have fallen out of favor since the World War, it does not seem improbable that some artist, in the near future, will again portray this old-time but extremely fascinating subject in a modern manner, perhaps with a different point of view than has ever been expressed before.

*The Physician of the Dance of Death: A Historical Study of the Evolution of the Dance of Death Mythus in Art, by Aldred Scott Warthin. New York: Paul B. Hoeber, Inc., 1931. 16+142 pages. Price, $7.50.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

MORSE, JOHN LOVETT. A.M., M.D. Harvard University Medical School 1891. F.A.A.P. Professor of Pediatrics Emeritus, Harvard Medical School. Consulting Physician at Children's Hospital. Infants' Hospital and Beth Israel Hospital. Member, New England Pediatric Society, American Pediatric Society, Association of American Physicians and Boston Obstetrical Society. His subject is: "The History of Pediatrics in Massachusetts." Page 169. Address: 319 Longwood Avenue, Boston.

SMITH, RICHARD M. A.B., Sc.D., M.D. Harvard University Medical School 1907. Assistant Professor of Child Hygiene, Harvard Medical School and School of Public Health. Associate Physician, Children's Hospital, Visiting Physician, Infants' Hospital. His subject is: "Urinary Infection in Children." Page 181. Address: 66 Commonwealth Avenue, Boston.

SISSON, WARREN R. A.B., M.D. Johns Hopkins Medical School 1912. Instructor in Pediatrics, Harvard University Medical School, Visiting Pediatrist, Boston Lying-In Hospital. His subject is: "The Common Cold and Its Sequelae in Infants and Children." Page 186. Address: 319 Longwood Avenue, Boston.

TILLOTSON, KENNETH J. M.D. University of Vermont College of Medicine 1921. Superintendent McLean Hospital, Waverley, Mass. Director of the Mental Hygiene Clinic at the Massachusetts General Hospital, Boston. Instructor in Psychiatry, Harvard Medical School. His subject is: "Mental Hygiene Clinics in General Hospitals." Page 195. Address: McLean Hospital, Waverley, Mass.

O'HARA, DWIGHT. B.S., M.D. Harvard University Medical School 1919. F.A.C.P. Professor of Preventive Medicine, Tufts College Medical School. Junior Visiting Physician, Boston City Hospital. Physician in Chief for Contagious Service, Waltham Hospital. His subject is: "The Borderlands of Scarlet Fever." Page 198. Address: 520 Commonwealth Avenue, Boston.

MISCELLANY

A BROADCASTING MESSAGE PREPARED AND SPONSORED BY THE COMMITTEE ON PUBLIC EDUCATION OF THE MASSACHUSETTS MEDICAL SOCIETY FOR THE DEPARTMENT OF PUBLIC HEALTH

WHY DO WE NEED VACATIONS?*

We need vacations because it takes us so long to learn temperance and balance in the things we do and the way in which we do them; and because we must make some restitution of the important things crowded out of life by the zealous pursuit of dominating interests.

Today business is our great devotion. Work, play, education, religion, everything worth our attention must follow the manner of "Andy", the perfect business man, who always "does everything on the business basis". We must measure and appraise all our interest in terms of magnificent figures—preferably financial figures. The magic promise of business to get for us the new things we desire, has lured us away from our native earth and open air and sunshine to an artificial world of factories and offices and city streets and dwellings. Gasoline, electricity and wheels provide most of our trans-

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portation. Gears, belts and fans accomplish most of the household tasks performed by human energy and ingenuity one or two generations ago. Music, sports, news and even worship come to us at the turn of an electric switch. We call it a "machine age". We hear it frequently said that some machine is "almost human". Machinery has certainly taken over many of the tasks of the human body, not always to the advantage of the body. Some of us, indeed, seem even disposed to admit that machinery has usurped the individuality and the responsibility that once we recognized as our own.

With all the magnificence of business this artificial business life has many vital defects. In the pursuit of this fascinating new game we have abused our bodies, our minds and even our capacities for normal, wholesome human feelings. In fact at times we even lose zest for business itself.

Probably the most obvious deficiency for which business is directly or indirectly responsible is lack of sunshine and recreational exercise. Our physicians and many of the rest of us know that a long train of diseases and other ills result from this lack. In childhood, imperfect development; and throughout life, infectious diseases, disorders of digestion, diseases of the joints, the heart and other serious troubles may result more or less directly from this privation. A less conspicuous but no less serious fault is lack of perspective and other morbid mental states. Today the suggestion that life does not consist in the abundance of things possessed is pretty likely to be regarded as impractical sentimentality. Universal admiration of the marvels of machinery and other creations of industry has quite discredited the older kind of individuality and seems to threaten the integrity of all individuality. Yet something from long and broad experience of many peoples seems to tell us that the satisfactions which we all really desire demand something more than the acquisition of things—something indeed in the way of experience shared with other souls to make existence mutually more complete and satisfying. These deeper needs of individuals in the midst of the confusing and seemingly contradictory facts of our machine society are the favorite themes of recent philosophers who write many books and propose social and political reforms.

In the meantime, however, while our philosophers, sociologists and statesmen are finding some better way for all of us, those of us who have the first-hand job of adjusting ourselves to things that are not quite right cannot do much better than take an occasional temporary recess from the badly adjusted environment that we cannot personally change. For the majority of people today, vacations from the usual routine, following the popular idea of "vacation", effect at least a brief demonstration and lesson in restoring the natural element of physical recreation in the out-of-doors. The increasing popularity of mountain and seashore and the open road is evidence that more and more people are at least being exposed to these brief lessons.

The direct benefits of these vacations are, however, only temporary. The tan soon wears off; sore and over-used muscles soon lapse into their former flaccid state. The full value of vacations in their physical effects will be realized only when the substance of these temporary lessons becomes woven into the fabric of our daily habits as elements of life for which we have to make no special vacation efforts or even plans. Beginnings have already been made in maintaining throughout the year provision for these particular vacation needs. Manufacturing industries are building splendid new plants with special systems of ventilation and special systems of illumination designed to provide in all seasons by day or night not only light; but also the health-giving properties of natural sunlight. Office buildings are designed and built to accomplish the same purpose. Homes, also, are being thus equipped. Business rather generally is studying the problem of shorter working hours; and thus encouraging recreation activities.

When the physical needs (for which vacations are such a poor makeshift provision) have been completely realized and taken care of as a mere detail of daily habit, we shall not need vacations for sunshine, air and exercise as physical needs of depleted bodies. Then, perhaps, our need of vacations for their intellectual and cultural values will stand out more clearly. Then we may come to take vacations primarily for the opportunity of broadening and stimulating experiences in human relations for which our routine daily life affords too little opportunity.

Conceivably these intellectual and cultural needs also may become an integral part of daily life and occupation at some distant time when all labor shall become elevated to the dignity of a vocation. When we no longer need "vacations" as lessons in physical and cultural readjustment, then, no doubt, we shall still need vacations to encourage even more spiritual interests in which a busy active life is sure to be deficient.

GIFT TO CINCINNATI HEALTH BOARD

The Health Board of Cincinnati is in receipt of an unsolicited gift of $10,000 from the Western and Southern Life Insurance Company for the purchase of an x-ray machine for the Cincinnati Health Center. The cost of the services of a part-time x-ray operator is included. The Health Board had long sought an appropriation for this purpose, unsuccessfully.

DR. FRANCIS D. DONOGHUE SAILS TO ATTEND CONGRESS

Dr. Francis D. Donoghue of the Massachusetts Industrial Accident Board recently sailed on the America of the United States Lines as United States delegate appointed by President Hoover to attend

the sixth industrial congress of industrial and occupational diseases, at Geneva.

WHITE HOUSE CONFERENCE PUBLICATIONS VOLUME III

One-half of the communicable diseases in the United States annually occur among children, causing about 15 per cent. of the deaths, the White House Conference on Child Health and Protection has just announced.

In making public the report, which was prepared by the Committee on Communicable Disease Control of which George H. Bigelow, M.D., is chairman, it was explained orally at the conference that there are nearly 3,000,000 cases of communicable diseases reported in the United States annually and many more which are never reported. Additional information on the latest report prepared under the auspices of President Hoover's conference for the welfare of American children was made available as follows:

The purpose of the report is fourfold: To point out the importance of the control of communicable diseases among children; to review current control practices; to recommend those practices which seem most valuable; and to suggest the fields in which further study is most urgently needed.

In addition to the deaths and the economic and social losses from cases of communicable diseases among children, there are numerous permanent disabilities resulting from them which may handicap the child throughout his entire life. Between 50 per cent. and 75 per cent. of the crippled children in the Nation owe their condition to infantile paralysis. Blindness, damaged hearts and kidneys, increased susceptibility to other infections, are all found in the wake of communicable diseases among children. Economic and humanitarian motives alike demand that every known effective means of control be fully utilized and that further studies to increase our knowledge be expedited.

Adequate medical service readily available is fundamental for proper communicable disease control. Public health nurses can be, and are, important agents in administering machinery to control the spread of these diseases. There must be an effective administrative organization to cope with them.

To be most effective the profession must have information in respect to the cause, recognition, mode of transmission, methods of immunization and specific therapy of the particular disease. This means prompt reporting. An effective administrative organization with professional personnel should provide facilities for such services as the diagnostic laboratories, prompt investigation of sources of infection, suitable hospitalization, and a consistent educational program to raise popular support for sound control practices. Sufficient resources should be had for specific therapy.

This means adequately trained, full-time health service for Federal, State, urban and rural units. Without such facilities and personnel, all efforts toward the control of communicable diseases are handicapped to an extent that is but little realized outside of professional public health circles.

The report is the result of an extensive study made by a large number of qualified experts and is regarded as the most up-to-date and authoritative survey of the subject now available. The section on suggested procedures for the control of communicable diseases has been critically considered by the entire Committee as well as by other authorities to whom it was submitted in advance of publication. It is believed that it contains the most dependable information obtainable on the control of different diseases.

This volume, constituting the third publication by the White House Conference, was preceded by a volume on "The White House Conference," containing addresses delivered at the conference and abstracts of 17 main committee reports; and "The Home and the Child," a study of home management in its relation to the health, growth, and welfare of the family. Copies can be obtained by writing to the Century Company, publishers, in New York City.

GREATER PREVALENCE OF SCARLET FEVER AND MEASLES

The United States Public Health Service has issued the following statement regarding the prevalence of communicable diseases in the United States.

The 96 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 33,285,000. The estimated population of the 89 cities reporting deaths is more than 31,740,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics. Weeks ended June 20, 1931, and June 21, 1930:

Cases Reported	1931	1930	Est. exp.
Diphtheria:			
46 States	768	851	—
96 cities	420	417	660
Measles:			
45 States	11,592	10,437	—
96 cities	4,631	4,002	—
Meningococcus meningitis:			
46 States	71	111	—
96 cities	32	55	—
Poliomyelitis:			
46 States	37	105	—
Scarlet fever:			
46 States	2,953	2,011	—
96 cities	1,414	891	854

Smallpox:			
46 States	604	995	—
96 cities	48	62	39
Typhoid fever:			
46 States	319	412	—
96 cities	58	48	50
Deaths Reported			
Influenza and pneumonia:			
89 cities	463	454	—

MOUNT SINAI HOSPITAL

Mount Sinai Hospital will this Fall establish a consultation service for patients of moderate means referred by their family physicians. A flat fee of $35 has been tentatively fixed for all patients, who will be referred back to their physicians for treatment.

PHYSICIANS IN TURKISH NATIONAL ASSEMBLY

The National Assembly, representing the executive and legislative body of the Turkish republic, contains in its membership of 316 Representatives 23 physicians. Two of the nine Cabinet Ministers, who are also members of the Assembly, are physicians.

MORTALITY RATES

Telegraphic returns from 82 cities with a total population of thirty-six million for the week ending June 27, indicate a mortality rate of 11.2 as against a rate of 11.3 for the corresponding week of last year. The highest rate (19.1) appears for Des Moines, Iowa, and the lowest (3.2) for Flint, Mich. The highest infant mortality rate (12.7) appears for Lowell, Mass., and the lowest for Duluth, Minn., Grand Rapids, Mich., Knoxville, Tenn., Long Beach, Calif., and Somerville, Mass., which reported no infant mortality.

The annual rate for 82 cities is 13.0 for the twenty-six weeks of 1931, as against a rate of 12.8 for the corresponding weeks of 1930.

DEATHS* (STILLBIRTHS EXCLUDED) REPORTED DURING THE WEEK ENDING JUNE 27, 1931, WITH DEATH RATES IN LARGE CITIES OF NEW ENGLAND

City	Week ending June 27, 1931				Infant mortality rate for the year 1929 (c)	Corresponding week, 1930			Death rate (a) for first 26 weeks	
	Total deaths	Death rate (a)	Deaths under 1 year	Infant mortality rate (b)		Total deaths	Death rate (a)	Deaths under 1 year	1931	1930
Boston	198	13.1	17	49	69	161	10.7	14	15.4	15.5
Bridgeport	31	11.0	2	33	71	22	7.8	2	12.1	12.3
Cambridge	33	15.1	4	80	57	31	14.2	3	13.5	13.4
Fall River (d-e)	13	5.9	1	23	66	19	8.6	4	12.9	13.3
Lowell (d)	32	16.6	5	127	69	24	12.4	3	13.7	14.7
Lynn	9	4.6	1	26	56	19	9.7	0	10.9	11.8
New Bedford (d)	30	13.9	2	53	66	20	9.3	2	13.3	12.2
New Haven	39	12.5	1	19	47	36	11.5	1	12.7	14.4
Providence	63	12.9	8	74	66	57	11.7	5	14.1	14.5
Somerville	21	10.4	0	0	53	12	6.0	0	10.4	10.9
Springfield, Mass.	26	8.9	5	77	59	29	10.1	3	13.1	13.4
Waterbury	14	7.2	1	30	68	26	13.5	7	10.3	10.6
Worcester	37	9.8	3	41	59	40	10.7	3	13.7	14.1

*Deaths of Nonresidents are included.

(a) These rates represent annual rates per 1,000 population, as estimated for 1931 and 1930 by the arithmetical method.

(b) Deaths under 1 year of age per 1,000 live births.

(c) Not in the registration area for births.

(d) Population April 1, 1930; decreased 1920 to 1930; no estimate made.

(e) Deaths for week ending Friday, June 26, 1931.

URUGUAY AND PARAGUAY

Two press reports to The *New York Times* exemplify the changeable Latin temperament, at least as it exists in the sister republics with the interchangeable names.

From Montevideo, in Uruguay, we learn that the Uruguayan physicians have formed a Uruguayan section of the Pan-American Medical Association with Dr. Becerro de Bengoa as president and Dr. Carlos Maria Dominguez as secretary.

In Paraguay—the other way. Here, in Asuncion, striking students of the medical school remain in possession of Paraguay's principal hospital, which they seized last week when the university authorities refused to accept their demands. The students are wearing army campaign uniforms and refusing admittance to the director and other hospital authorities, admitting only doctors and nurses on active duty.

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS

For June, 1931

In June, 1931, there were eight thousand eight hundred and forty-five cases of communicable disease reported to the Massachusetts State Department of Public Health. This is the usual figure for the season and is nearly two thousand less than the number reported for the corresponding month of 1930.

Fifteen cases of Anterior Poliomyelitis were reported this June—a moderately high figure for the month. Anterior Poliomyelitis is beginning somewhat early this year, as it did in 1927. A high figure in June, however, though it frequently indicates an epidemic, does not invariably do so.

One hundred and ninety-one cases of Diphtheria were reported. This continues the phenomenally low prevalence of this disease which began in November of last year. This is now the eighth consecutive month of record-low figures for disease.

Our figures showing that seven cases of Epidemic Cerebrospinal Meningitis reported for June, are relatively low for this time of year. For a year now, we have had a steady diminution in the number of cases reported as compared with the number reported for the corresponding month of the year before.

Two thousand three hundred and sixty cases of Measles were reported in June, but little more than half the number occurring in June of the previous year. The number reported this year is not far from the average for June.

Eight hundred and ninety-nine cases of Scarlet Fever form a total somewhat higher than the usual for June being nearly three hundred more than were reported last June. The number, however, represents a falling off from the number reported earlier this year—an expected seasonal decline.

Lobar Pneumonia with one hundred and ninety-nine cases, Pulmonary Tuberculosis with four hundred and forty-six cases and other forms of Tuberculosis with sixty-seven cases show approximately the usual number of reported cases for these diseases for June.

Typhoid Fever was reported eighteen times in June. Although this year does not show any remarkably low figures for the months, there has been a general tendency for typhoid to remain low so that we may have a year of unusually low prevalence.

Whooping Cough with five hundred and five cases is likewise establishing a rather low level both for the season and the year.

Chicken Pox with one thousand and seventy-six cases is rather abnormally high, and has been so throughout the year.

Only three hundred and fifty-two cases of German Measles were reported—a moderately high figure for this time of year, yet well below the limits of epidemic prevalence even in June.

Three cases of Influenza came to our attention in June, a singularly low figure, but one on which little reliance can be placed in view of the uncertain character of the disease.

Five hundred and ninety-seven cases of Mumps were reported to the Department, a figure perhaps somewhat higher than the usual seasonal figure which is in the four hundreds.

Six hundred and sixty-two cases of Gonorrhea and three hundred and ninety-three cases of Syphilis are totals somewhat above the usual trend of these diseases. The figure for Gonorrhea is surpassed only by the war-time prevalence of Gonorrhea, and the figure of three hundred and ninety-three is the highest number of cases reported in June for Syphilis since the beginning of our records.

RARE DISEASES

Actinomycosis was reported from Boston, 1.

Anterior Poliomyelitis was reported from Boston, 2; Braintree, 1; Brockton, 1; Brookline, 1; Medford, 1; New Bedford, 3; Newton, 3; Norwood, 1; Swampscott, 1; Waltham, 1; total, 15.

Anthrax was reported from Salem, 1.

Encephalitis Lethargica was reported from Worcester, 1.

Epidemic Cerebrospinal Meningitis was reported from Boston, 2; Gloucester, 1; Greenfield, 1; Lawrence, 1; Shrewsbury, 1; Worcester, 1; total, 7.

Malaria was reported from Chelsea, 1.

Pellagra was reported from Boston, 1; Worcester, 1; total, 2.

*Rabies** was reported from Waltham, 1; Watertown, 1; total, 2.

Septic Sore Throat was reported from Beverly, 1; Boston, 1; Cambridge, 1; Danvers, 1; Framingham, 1; Medford, 1; Warren, 1; Worcester, 1; total, 8.

Tetanus was reported from Fall River, 1; Monterey, 1; total, 2.

Trachoma was reported from Boston, 3.

Trichinosis was reported from Haverhill, 1.

Undulant Fever was reported from Greenfield, 1.

*A rabies death occurred in Westboro; not yet officially reported.

MONTHLY REPORT OF CERTAIN COMMUNICABLE DISEASES

	Cases in Entire Pop.				Case Rates per 100,000 Pop.		
	June 1931	June 1930	Proso. Index*	Epi. Index†	June 1931	June 1930	Expected Rates‡
All Causes	8845	10,442	—	—	206.8	245.4	—
Ant. Polio.	15	3	6	2.5	.4	.1	.1
Diphtheria	191	203	302	.6	4.5	4.8	7.1
Ep. C. S. Men.	7	16	4	1.7	.2	.4	.1
Measles	2360	4227	4025	.6	55.2	99.3	94.1
Pneu. Lobar	199	254	221	.9	4.6	6.0	5.2
Sc. Fever	899	603	670	1.3	21.0	14.2	15.7
Tbc. Pul.	446	401	405	1.1	10.4	9.4	9.5
Ty. Fever	18	16	18	1.0	.4	.4	.4
Wh. Cough	505	774	861	.6	11.8	18.2	20.1
Chicken Pox	1076	876	—	—	25.2	20.6	—
German Measles	352	820	—	—	8.2	19.3	—
Gonorrhea	662	568	—	—	15.5	13.3	—
Influenza	3	8	—	—	.1	.2	—
Mumps	597	454	—	—	14.0	10.7	—
Syphilis	393	305	—	—	9.2	7.2	—
Tbc. O. Forms	67	49	—	—	1.6	1.2	—

*This index is an attempt to estimate the number of cases based on the trend during the past years which can be expected to occur, and is for the purpose of comparison with the number of cases which actually did occur.

†This ratio expresses how prevalent the disease is compared with the index mentioned above; 1.0 indicates that the actual number of cases equals the expected number. A larger number means a greater prevalence, and a smaller number a lesser prevalence than expected. Thus, 2.0 would indicate twice the expected number of cases, and .5 half the expected number of cases. The method used to determine the indices is described in the August 18, 1927 issue of the *Boston Medical and Surgical Journal*.

‡Calculated from the Prosodemic Index.

CORRESPONDENCE

AN OBJECT LESSON

July 15, 1931.

Editor, *New England Journal of Medicine*,
165 Newbury Street,
Boston, Mass.

Dear Sir:—

We believe that it should be possible to benefit by the errors of others and it is for that reason we submit the following as an example of the need for suspecting syphilis in adults with obscure rashes or other obscure conditions. This history was obtained as the result of a personal interview with a patient.

In October, 1930, a young man, 28 years of age, living in a community just outside the Boston Metropolitan Area, after two or three sex exposures, developed a penile lesion. Not realizing the seriousness of such lesions he proceeded to treat it himself with hot water and peroxide. The lesion eventually healed within a matter of two weeks or so.

About the first of June the patient appeared at one of the Boston clinics with a large lesion on his upper lip and a sore throat. The lesion was found to contain many spirocheta pallida and subsequent blood examinations further confirmed the diagnosis of syphilis. Questioning of the patient brought out the following history which is given in as nearly the same narrative form as he gave it as possible.

Question: When did your last sex exposure take place?

Answer: In late September or early October, 1930.

Question: When did the sore appear?

Answer: About two weeks after the last sex exposure.

Question: Did you have a doctor see the sore?

Answer: No, I did not realize that it might be serious and treated it myself with hot water and peroxide. It healed in about two weeks.

Question: Do you mean to say that a young man as sexually active as you have been has had no sex exposure since early October, 1930?

Answer: That is the truth for I have been sick much of the time since.

Question: Sick with what?

Answer: Well, in November, 1930, I had the grippe and while I had the grippe I broke out with chicken pox and that wasn't enough but I had to get rheumatism on top of all that.

Question: What was the grippe like?

Answer: I felt tired and weak, had some fever and a sore throat.

Question: Who diagnosed it as grippe?

Answer: Dr. ——— of ———, Mass.

Question: How long did the grippe last?

Answer: About five or six weeks.

Question: Who said you had chicken pox?

Answer: The same doctor.

Question: Were there any scabs following the chicken pox?

Answer: No.

Question: How long did the chicken pox last?

Answer: Five or six weeks.

Question: What did the chicken pox rash look like?

Answer: There were little red lumps all over my

body and when I pricked them with a needle they bled.

Question: Where did you have the rheumatism?

Answer: I ached in all my bones.

Question: Who said you had rheumatism?

Answer: The same doctor said the rheumatism probably was a complication of the grippe.

Question: Did you receive any treatment for these conditions?

Answer: Yes, some pills and some liquid medicine.

Question: How many visits did you make to the doctor?

Answer: Four or five.

Question: When did the sore appear on your lip?

Answer: About four months ago (that would be some time in March).

Question: When did your last sore throat appear?

Answer: About two months ago (that would be some time in May).

Here is a patient with secondary recurrent syphilis. There is little doubt from the basis of both history and the acute condition in November that the patient was suffering from acute secondary syphilis when he was supposed to be having "grippe", "chicken pox" and "rheumatism". Chicken pox eruption does not last five weeks and is followed by scabs. A feeling of malaise and aching bones and sore throat are typical manifestations of secondary syphilis, which, associated with the rash, should have prompted the physician to suspect syphilis.

Not long ago two adults were reported as having smallpox when in fact they had a pustular form of secondary syphilis. One of these cases was in a woman whose social history was apparently excellent and there was no other case discovered in her family. A married daughter, however, refused examination and it is possible that she may have been the source of her mother's infection. In the other case the infection was the result of active promiscuity on the part of the patient. Her husband was infected by her.

Chicken pox in adults is rare enough to cause suspicion first of smallpox and second of syphilis, but any skin condition in an adult which is not capable of absolute diagnosis deserves a blood test. In fact many physicians today are convinced that the only sure way of discovering or ruling out syphilis is to make blood examination routine in every patient who comes into the office.

Yours truly,

N. A. Nelson, M.D., *Assistant Director*,
Division of Communicable Diseases

RECENT DEATH

CALLAHAN—Dr. John Francis Callahan, a member of the New England Otological and Laryngological Society, died at his home in Brockton, July 12, 1931, at the age of 58.

Dr. Callahan was a graduate of the Tufts College Medical School in 1906. He joined the Massachusetts Medical Society in 1915 and had devoted himself to the practice of otology and laryngology. Several years ago he spent much time in an effort to correct the abuse of clinics and health associations being secretary of a committee appointed by the State medical society to investigate this subject.

He held membership in the American Medical Association, in the Brockton Medical Society and was a captain in the Reserve Corps, United States Army.

Dr. Callahan is survived by his widow, Mrs. Isobel McKee Callahan.

NOTICE

Changes of Duties and Stations of Commissioned Officers of the United States Public Health Service in New England

Assistant Surgeon Chapman H. Binford was relieved from duty at Norfolk, Va., July 10, and assigned to duty at Boston in connection with field investigations of public health at Harvard Medical School.

Assistant Surgeon O. L. Anderson has been directed to proceed from Boston to Hot Springs, Ark., for special temporary duty at the Public Health Service Clinic.

NOTICE OF MEETING

AMERICAN ACADEMY OF PHYSICAL THERAPY

William F. Roberts, M.D., President of the American Academy of Physical Therapy, will be one of the speakers at the coming convention for the American Academy of Physical Therapy which will be held, at the Mt. Royal Hotel in Montreal, September 2, 3, and 4.

Dr. Roberts was graduated from Bellevue Hospital Medical College in New York City in 1894. He has been practicing his profession for 37 years in his native city, Saint John. At present, in addition to being the President of the American Academy of Physical Therapy, he is the President of the St. John Health Centre Association, President of the St. John Kiwanis Club and Chairman of the Committee on Public Affairs for Canada of Kiwanis International.

He has been a member of the Academy for five years and for the last four, a Fellow. At the 1930 convention held in Boston, he was chosen President.

Dr. Roberts inaugurated the first Ministry of Health in the British Empire at New Brunswick, Canada. He also has developed Physical Therapy and Radium in which he is interested, and is today in possession of one of the most adequately equipped laboratories to be found anywhere.

Dr. Arthur H. Ring of Arlington Heights, Massachusetts, is the Chairman of the Publicity for the coming Convention.

SOCIETY MEETINGS
CONGRESSES AND CONFERENCES

July 26-31—Third Congress of the Pan American Medical Association. See page 632, issue of March 19.

July 27—The Post Graduate Course of Ear, Nose and Throat Surgery at the University of Bordeaux, France. See page 951, issue of April 30.

July 27-31—Third International Congress of Radiology, Paris. See page 789, issue of April 9.

August 3-8—The International Congress of Industrial Accidents and Diseases. See page 1330, issue of June 18.

Aug. 31 - Sept. 4 — Neurologists will meet in Berne, Switzerland. See page 896, issue of April 23.

September 2, 3, 4 — American Academy of Physical Therapy. See page 215.

September 14-17—The American Public Health Association. See page 632, issue of March 19.

October 12-16—An Announcement of the Clinical Congress of the American College of Surgeons. See page 1175, issue of May 28.

October 19-22—The Interstate Post Graduate Medical Association of North America. See page 1125, issue of May 21.

October 19-30—Graduate Fortnight of the New York Academy of Medicine. See page 1230, issue of June 4.

April 4-8, 1932—The American College of Physicians. See notice on page 1232, issue of June 4.

DISTRICT MEDICAL SOCIETIES

Bristol North District Medical Society

September 17—Details to be announced.

BOOK REVIEWS

New and Nonofficial Remedies, 1931, containing descriptions of the articles standing accepted by the Council on Pharmacy and Chemistry of the American Medical Association on Jan. 1, 1931. Cloth. Price, postpaid, $1.50. Pp. 481 + LVI. Chicago: American Medical Association, 1931.

This volume is the annual publication of the Council on Pharmacy and Chemistry of the American Medical Association giving the latest authentic information concerning those of the newer medicinal preparations found worthy of the consideration and use of the medical profession. Each year the Council scans the general articles under which the various preparations are classified and revises these to conform to the latest and best medical thought.

A glance at the preface shows that a number of preparations have been omitted because they conflict with the rules that govern acceptance, because their distributors did not present evidence to demonstrate their continued acceptability, or simply because the manufacturers have taken them off the market. Important revisions have been made in a number of the general articles and in the descriptions of various preparations. Among the new preparations that have been found by the Council during the past year to be eligible for admission to the book are: Amytal and Pulvules Sodium Amytal, 3 grains, barbituric acid derivatives for use preliminary to surgical anesthesia; Thio-Bismol, quinine bismuth iodide, sodium potassium bismuthyl tartrate, and Tartro-Quiniobine, bismuth compounds for use in the treatment of syphilis; Scillaren and Scillaren-B, preparations containing the squill glucosides; two new cod liver oil concentrates; Synephrine, a new vasoconstrictor, and synthetic thyroxine.

New and Nonofficial Remedies should be in the hands of all who prescribe drugs. The book contains information about the newer materia medica which cannot be found in any other publication.

Mikrobiologie und Immunitätslehre. Ein Leitfaden für Studierende und Artze. By DR. H. HETSCH. Urban & Schwarzenberg. Berlin and Vienna, 1931, Pp. 443. Price, bound RM. 15.

This is a textbook of bacteriology and immunity for students and physicians by the junior author of the well-known "Lehrbuch der Experimentellen Bakteriologie und der Infektionskrankheiten" of Kolle and Hetsch. The author states that he has attempted to present the less controversial and more generally accepted views of these subjects. The book is divided into two parts, first a general survey of bacteriology and immunology and second, a more detailed discussion of bacteria and protozoa and their effects on the animal and human organism.

As might be expected, the volume is excellent for its purpose. Dr. Hetsch is an authority in this field and fully capable of carrying out his object. The portions read by the reviewer seem entirely adequate to give the student a sound basis for future work. This book is to be recommended also to those who wish to obtain rapidly an expression of authoritative Continental opinion on bacteriological subjects.

The Sex Factor in Marriage. By HELENA WRIGHT, M.B., B.S. Published by The Vanguard Press, New York. 1931. Pages 119. Price $2.00.

Abel Gregg, in his introduction to this little book, states that "Studies of American divorce records point specifically to ignorance about mutually satisfying practices in sex intercourse as a major cause for divorce". Physicians are well aware of the tragic results that follow lack of adjustment between married people. For the above reasons, it would appear that there is need for such books as this one of Helena Wright's.

The author, who has been a medical missionary in India, gives the main facts of the physiology of reproduction in simple terms, and in a straightforward, dignified way indicates the desirability of achieving mutual satisfaction and the ways in which this may be accomplished.

For the married and for those about to be married, the book may be recommended.